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VHA MODEL REVIEW

by

Michele L. Williams

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Thesis Advisor: Laura Johnson

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These models are a Weighted Regression Model which, like the current model, predicts medians; and an Analysis of Covariance model which

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VHA Model Review

by

Michele L. Williams
Lieutenant, United States Naval Reserve
BSBA, University of Denver, 1980

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Author: Michele L. Williams

Michele L. Williams

Approved By: Laura D. Johnson

Laura D. Johnson, Thesis Advisor

Donald P. Gaver

Donald P. Gaver, Second Reader

P. Purdue

Peter Purdue, Chairman, Department of
Operations Research

ABSTRACT

A regression model is used by the Office of the Secretary of Defense (OSD) to predict median rents so as to find variable housing allowance (VHA) as a supplement to Basic Allowance for Quarters (BAQ). These allowances are made for service members in the continental United States. It is this model that is reviewed in this thesis. Median rental data taken from the annual VHA survey are used to test this model. From this analysis, the model indicates lack of fit, invalid assumptions and perhaps not even a "reasonable" approach. A more sensible approach is used to propose two other regression models.

These models are a Weighted Regression Model which, like the current model, predicts medians; and an Analysis of Covariance model which predicts or analyzes the mean rent. More reasonable predictions of median and mean rent are indicated by these two models respectively.

Keywords; Theses,
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I. INTRODUCTION

A. BACKGROUND

VHA, Variable Housing Allowance, is a supplement to the BAQ, Basic Allowance for Quarters, paid to service members who live in private housing in the United States. VHA is designed to aid the service member who is assigned to a "high cost area" of the United States where the median monthly cost of housing for a person in the same grade or dependency status exceeds 80% of the national median for members in the same rank or dependency status [Ref. 1:p. 2-1]. VHA is computed from the following equation [Ref. 1:p. 2-2]:

$$\text{VHA} = \text{local median housing costs by paygrade and marital status} - 80\,\%\text{ of the national median housing cost by paygrade and marital status.} \qquad (1)$$

The law specifies that each member's VHA allowance will be determined by the actual housing costs currently paid by the service member [Ref. 1:p. 2-2]. VHA rates are computed by the Per Diem Travel and Transportation Allowance Committee Staff, a subset of the Office of the Secretary of Defense (OSD), with the aid of the Defense Manpower Data Center, DMDC. The basic process by which the rates are computed is as follows:

1. Distinct areas in which military members reside are determined.
2. Proper sample sizes are determined.
3. Survey samples of housing costs are taken, edited and median rents are computed for each category of paygrade, house type, number of bedrooms, and marital status.

4. Preliminary VHA rates for each area and dependency status are computed by determining an estimated median rent for each category using the GPX program which utilizes various regression analysis techniques and smoothing procedures. (GPX is the name of the model developed by OSD.)

5. Preliminary VHA rates are reviewed to ensure that the rates determined by GPX are in line with the cost guidelines set by Congress.

B. CURRENT VHA COMPUTATIONAL PROCESS

The computation of preliminary VHA rates for each area (MHA - military housing area), paygrade, and dependency status has developed into an extremely complicated process. Once the median rents are computed for each category of house type, number of bedrooms, paygrade, and marital status, a count of the number of median rents per category is taken [Ref. 1:p. 2-56]. If the number of counts in each category for a particular MHA is too small then larger sample sizes are obtained by incorporating median rent information from the same category from a close, in geographic terms, MHA. [Ref. 1:p. 2-58] This information, taken from these close MHA's is then weighted. The closer, in terms of miles, this MHA is to the original MHA the more weight is placed on the information from that MHA. [Ref. 1:p. 2-59] A new vector of median rents, incorporating the information from the geographically close MHAs and dimensioned by the four categories above is calculated. [Ref. 1:p. 2-59] The underlying reason for finding this vector of median rents is to find the underlying relationship between the total pay of a military member and the amount of rent a military member will pay [Ref. 1:p. 2-60]. Let P_{ijkl} = the total pay for a person in the ith paygrade, in the jth dependency status who has 'k' number of bedrooms in his or her home and an 'l' type of home. Let T_{ijkl} equal the median rent for military members in that same group. Then the current regression model in use is:

$$\frac{1}{T_{ijkl}} = \frac{A}{P_{ijkl}} + B + \epsilon_{ijkl} \qquad (2)$$

where ϵ_{ijkl} is the error term. Standard linear Regression techniques are use to estimate A and B which assume the error is normally distributed, homoscedastic, and with mean zero. This in turn means that the distribution of inverted median rent is normal and homoscedastic. It is not clear that these assumptions are in any sense "reasonable". In fact if medians tend to be normal, then the inverse will certainly not be normal. Let $\hat{A}$ and $\hat{B}$ denote the regression estimates of A and B, respectively. The estimates $\hat{A}$ and $\hat{B}$ are used to determine

the estimated median rents, R_{ijkl} through the equation

$$R_{ijkl} = \frac{P_{ijkl}}{(\hat{A} + \hat{B} * P_{ijkl})} \qquad (3)$$

where R_{ijkl} and P_{ijkl} denote the rent and total pay, respectively, for paygrade, marital status, number of bedrooms and house type [Ref. 1:p. 2-60]. Generally, a separate $\hat{A}$ and $\hat{B}$ are determined for the enlisted, company grade officers, and field grade officer ranks. Thus a separate R_{ijkl} is computed for each one of these three ranks of military personnel. R_{ijkl} is then used to determine owner equivalency median rents. Owner equivalency rents are the rent figures assigned to a military member who owns and does not rent his or her residence. Costs assigned to owners are thought not to be appropriate for use in calculating VHA since intangible benefits accrue to owners and not to renters. These owner equivalency median rents are weighted according to population percentage of owners and are then incorporated into the vector of median rents [Ref. 1:p. 2-61]. This new vector of median rents, including both owner and renter information, still has four dimensions and must then be aggregated to the paygrade and dependency status level. [Ref. 1:p. 2-61] After this aggregation, a further smoothing process and a denormalization process, the VHA rate multipliers are finally computed by dividing by a weighted average of BAQ rates [Ref. 1:p. 2-63]. These multipliers are checked and if an inversion exists, which for example, is when paygrade O2 receives less VHA than paygrade O1, then additional smoothing across paygrades will take place. If inversions still exist after the smoothing process has taken place then the entire computation of VHA multiplier rates begins again from the point where data from close, in geographic terms, MHAs is used [Ref. 1:p. 2-64]. Median rent information is then taken from these MHA's and the entire process is run again and again, up to 11 more times until the rate inversions cease to exist. If after 11 more times an inversion still exists then the GPX program aborts and an inversion in the total population data is assumed. [Ref. 1:p. 2-64]

C. PROPOSED PLAN TO UPDATE VHA COMPUTATIONAL PROCESS

In an effort to get away from the geographical weighting of data from close proximity MHA's and in an attempt to simplify the process of computing VHA rates, the Per Diem Committee is investigating a new method for computing VHA rates. Under this "new" plan, survey data from each MHA is placed into various costing bands based on county rental data from HUD (Department of Housing and Urban Development) in the following manner. From each county in the United States, HUD has data for the average rental costs in that county. A military housing area is placed into a costing band with other military housing areas which have the same average rental costs. Therefore if the computed average rental cost for MHA A is $260.00 and the median rental cost for MHA B is also $260.00, MHA A and MHA B would be placed in the same costing band. The computed median rent figure used in this "new" process is a single figure found by taking a weighted average of rental costs, based on number of bedrooms and house type, from the national military population. For example, if 10% of the national military population resides in one bedroom apartments, the average rental cost of one bedroom apartments for that MHA accounts for 10% of the total average rental cost figure for that county. Initially the bands will be broken into groups of $45.00 increments. The costing bands begin at an average rental cost of $260.00 and continue up to $890.00. There is one further costing band which accounts for the extremely high average rental cost areas such as Alaska which are so far above all of the other areas in terms of cost. Thus there are a total of 15 different costing bands including the "high" costing band. The idea behind grouping military housing areas together which have similar average rental costs is to provide more data points to reliably predict median rental costs per paygrade and dependency status based on the survey data. Also using an "outside", other than military, source to group the data provides a small means of getting away from the military raising its own VHA rates. The "intent of VHA is not to reimburse the military member for what he or she pays for housing costs but to enable the military person to live in adequate housing in whichever area he or she is assigned"[1].

The costing bands will be used for two major purposes. One purpose is, through the use of an appropriate regression model, to determine owner equivalency housing costs, and the other purpose is to provide housing cost data when there is insufficient data in a category to determine a median rent for that category. Once this needed data is found it will be incorporated back into the MHA data, and then, within the MHA, a median rent figure will be computed for each paygrade and dependency status. This figure will then be utilized in the congressionally mandated equation, (1), local median rent - 80%

[1]. From a conversation with Debra Davis, DMDC., June 1989.

of national median rental cost, to determine the VHA rates for that MHA. Of course these VHA rates are then subject to budgetary constraints and congressional approval.

D. DATA DESCRIPTION

The data used to determine VHA rates come from data collected from military members who participate in the VHA Survey. The VHA Survey is taken every other year. The data collected from the survey are kept by the Defense Manpower Data Center which is the repository for all of the data used in the VHA calculations. The data used in the VHA process consist of raw survey data taken from each military housing area, and contain information such as what type of house a military member lives in, whether it is a single family home, townhouse, apartment, or mobile home, how many bedrooms the house contains, whether or not the military member has any dependents or whether he or she shares the housing costs with another military member, and the paygrade and service of the military member. Also contained in the data for each military person who participates in the survey is the rental cost, utility costs, and maintenance cost of the housing. Other items such as social security numbers, whether the member rents or owns the housing, and other miscellaneous information are also part of each data record for that particular military person.

The data used in this analysis and taken from the 1989 survey, consist of the paygrade (E1-O9) and dependency status, having dependents, single, or single and sharing, of the military member. In addition, the total housing cost for that member which consists of the rent plus the maintenance cost plus the utility and insurance costs is used. Further information on the living space for the individual is also needed, such as the number of bedrooms (1-4), and the type of living space, detached house, townhouse type, apartment, and or mobile home. Additionally, total pay (basic pay + BAQ) has to be associated with each military member's dependency status and paygrade in order to perform the regression analysis. These raw data are edited to reflect only true rental costs not ownership costs. Thus one data record used in this analysis consists of information regarding paygrade, house type, number of bedrooms, dependency status, total housing costs, and total pay.

From this initial set of data one median rent for each category of house type, number of bedrooms, marital status, and paygrade is then computed. Thus data for an individual costing band which might have consisted of over 50,000 records is reduced to a data set which contains a maximum of 1104 records which reflects all of the possible combinations of paygrade, house type, number of bedrooms and dependency status.

SAS was used to extract and edit the raw data, match total pay to paygrade and dependency status, and compute a median rent figure for each category of paygrade, dependency status, number of bedrooms, and house type. (An example of this program can be found in Appendix B.)

E. PROBLEMS WITH THE DATA

There is one major problem associated with the data used in the VHA computational process. The data used does not include data from the military members who are in paygrades E5 and above and who share a residence with another person. These data, which might provide further information and might enable a more reliable estimate of median rents for a MHA, to be computed, are not being used. This is a policy decision. This is a major problem in the computation of VHA rates because one of the basic reasons for the existence of the "costing band" idea and one of the major problems associated with the current manner in which VHA rates are calculated, is the sparsity of data. This policy decision essentially throws away what could be valuable and informative data and is contradictory to the purpose of finding "good" estimates of median rents.

F. PURPOSE OF THESIS

The main purpose of this thesis will be to test the validity of the currently used regression model equation (2). The data in its newly proposed format of costing bands will be used. If the current regression model is not found to be adequate then the second goal of this thesis is to suggest a better, more sensible model which will more accurately predict total housing costs for each costing band. Thus this thesis will basically consist of two different types of analyses and will analyze the MHA data from two vantage points. Since there is no explanation as to why an inverse of rent is predicted linearly by the inverse of pay (equation 2) a more sensible regression model will be examined to explain the relationship between total rent and total pay.

A secondary goal of this thesis will be to test the current and any proposed regression models not only with the data that is currently assigned to each costing band but also with fifteen other costing bands comprising of data from the original costing band plus data from the military members who are E5 and above who share housing with another person. Thus thirty costing bands will be formed and a comparison of the regression models using the data from the original costing bands and data from the "new" costing bands will be made. This is important because it may show that the regression models are better able to predict housing costs with the added information and this in turn will provide better, more accurate VHA rates.

II. ANALYSIS PROCEDURES

A. ORDINARY LEAST SQUARES REGRESSION

Most of the analysis performed in this thesis employs simple linear regression (ordinary least squares) to test the various postulated models.

In ordinary least squares regression, a linear model,

$$Y_i = B_0 + B_1 X_i + e_i \tag{4}$$

is used to find the relationship between the X_i's (independent variables) and the Y_i's (dependent variables). The random error component is denoted by e_i and assumed to be normally distributed independent random variables with mean zero and constant variance, σ^2. This relationship as described by B_0 and B_1 is used to further predict or estimate other Y_i's. Since B_0 and B_1 are fixed and unknown, b_0 and b_1, are used to denote the estimates of their values [Ref. 2:p. 11]. With the utilization of these estimators the least squares regression fitted values are described by [Ref. 2:p. 11],

$$\hat{Y} = b_0 + b_1 X_i . \tag{5}$$

The values for b_0 and b_1 are determined by minimizing

$$S = \sum_{i=1}^{n} \hat{e}_i^2 = \sum_{i=1}^{n} (Y_i - B_0 - B_1 X_i)^2 . \tag{6}$$

By differentiating this equation first with respect to B_0 and then with respect to B_1, and then by setting these results equal to zero and solving for B_0 and B_1, the values for b_0 and b_1 are found by setting the solution for B_0 equal to b_0 and B_1

equal to b_1. [Ref. 2:p. 13] The rationale behind this minimization process is to ensure that the predicted ith value is as "close" as possible (in Euclidean vertical distance) to the actual ith value for all i. If the model (4) is correct these estimates have minimum variance among all unbiased estimates. [Ref. 2:p.14] Utilizing the method above, the value for b_0 [Ref. 2:p. 14] is
given by

$$b_0 = \bar{Y} - b_1 \bar{X} \tag{7}$$

and the value for b_1 [Ref. 2:p. 13] is given by

$$b_1 = \frac{\sum_{i=1}^{n} (X_i - \bar{X})(Y_i - \bar{Y})}{\sum_{i=1}^{n} (X_i - \bar{X})^2.} \tag{8}$$

The sum of the residuals squared divided by the number of observations, n, minus two is given by

$$s^2 = \frac{\sum_{i=1}^{n} (Y_i - \hat{Y}_i)^2}{(n-2)} \tag{9}$$

and represents the unbiased estimator of the variance about the regression $\sigma^2_{y.x}$ [Ref. 2:p. 21] if the model is correct. If a postulated model (i.e., the conditional variance of y given x) is the true model then $\sigma^2 = \sigma^2_{y.x}$. [Ref. 2:p. 23] Thus s^2 is an estimate of σ^2 if the model is correct. [Ref. 2:p. 23]

The basic assumptions of ordinary least squares regression are:

1. $E(e_i) = 0$, $V(e_i) = \sigma^2$.
2. e_i and e_j are uncorrelated, $Cov(e_i, e_j)=0$.

3. e_i is a normally distributed random variable with mean zero and variance σ^2. Thus the e_i's are independent.

4. $E(Y|X) = a + bX$, the conditional expectation of Y given X is linear in X.

If assumptions 1 and 2 hold then ordinary least squares provides the best minimum variance linear unbiased estimates of the B_0 and B_1. [Ref. 2:p. 87] If all of the above assumptions hold then b_0 and b_1 are the maximum likelihood estimates of B_0 and B_1 and s^2 is an unbiased estimate of σ^2. [Ref. 2:p. 88]

If the residuals are normally distributed it is then possible to use the F and t tests to test the significance of the regression and to test the individual null hypotheses that B_0 equals 0 or that B_1 equals 0. If the null hypothesis is not rejected and the values for B_0 and B_1 are not deemed different from zero then, of course, there is no significant linear relationship between the independent variables and the dependent variables. The t test statistic is

$$t = \frac{(b_i - 0)\ \{\sum_{i=1}^{n} (X_i - \bar{X})^2\}^{\frac{1}{2}}}{s} \tag{10}$$

and has a student's t distribution with n-2 degrees of freedom. [Ref. 2:p. 26] The F test statistic tests the overall significance of the regression. The F test statistic is

$$F = \frac{b_1 \{\Sigma\ (X_i - \bar{X})(Y_i - \bar{Y})\}}{s^2} \tag{11}$$

and has 1 and n-2 degrees of freedom. [Ref. 2:p. 32]

The R^2 value measures the "proportion of total variation about the mean Y explained by the regression". [Ref. 2:p. 33] R^2 is the sum of squares due to regression divided by the total sum of squares, corrected for the mean Y and is denoted by

$$R^2 = \frac{\sum_{i=1}^{n} (\hat{Y}_i - \bar{Y})^2}{\sum_{i=1}^{n} (Y_i - \bar{Y})_2.} \tag{12}$$

Values for R^2 fall between 0 and 1. The closer the value of R^2 is to 1 the better the regression equation explains the variation of the data about Y.

The "residuals contain all available information on the way in which the fitted model fails to properly explain the observed variation in the dependent variable Y" [Ref. 2:p. 34]. Thus careful examination of the residuals will provide indications as to the adequacy of the proposed model. A graphic examination of the residuals may provide an indication that the model is systematically deficient. Also utilizing a lack of fit test may indicate that the model appears to be inadequate.

The lack of fit test breaks the residual sum of squares into the mean square due to lack of fit, MS_L, and the mean square due to pure error, s_e^2. [Ref. 2:p. 37] The MS_L estimates σ^2 if the model is correct and σ^2 plus a bias term if the model is inadequate. The value for s_e^2 estimates σ^2. [Ref.

2:p. 37] The lack of fit test compares the F ratio MS_L/s_e^2 with the 100(1-a)% point of an F distribution with $(n_r - n_e)$ and n_e degrees of freedom where n_r equals the number of degrees of freedom associated with the residual sum of squares and n_e equals the number of degrees of freedom associated with the pure error sum of squares. If the comparison is significant (i.e., the F ratio is greater than the tabled F value) this then serves as an indication that the model is inadequate [Ref. 2:p. 37]. If the test is not significant (i.e., the F ratio value is less than the tabled F value), this is an indication that "there appears to be no reason to doubt the adequacy of the model and both pure error and lack of fit mean squares can be used as estimates of σ^2". [Ref. 2:p. 37]

By graphically examining the residuals, a scatter plot of the e_i's versus the Y_i's will give an indication as to whether or not the assumptions of normality, homoscedasticity and linearity of ordinary least squares have been violated. If the proposed model is correct, the resulting residuals should indicate that these assumptions hold. [Ref. 2:p. 141] If the model is correct a plot of the residuals versus the fitted values should take the shape of a horizontal band as shown in Figure 2.1 below [Ref. 2:p. 145]. If the plot of the residuals takes the shape of a funnel as shown in Figure 2.2 below [Ref. 2:p. 146], the variance, σ^2, is not constant and is increasing with x, which indicates the need either for weighted least squares or a transformation on the observations Y_i before performing a regression analysis. [Ref. 2:p. 147]

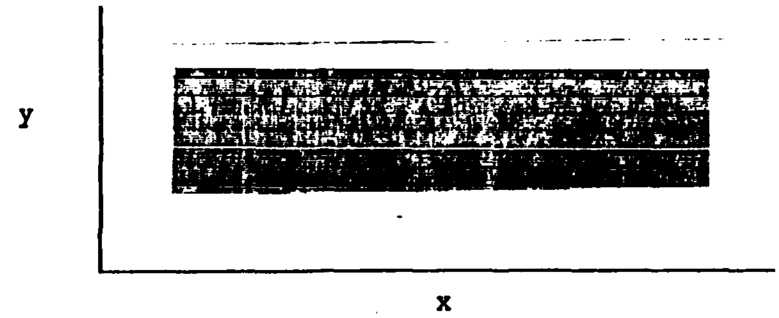


Figure 2.1 Satisfactory Residual Plot
[Ref. 2:p. 145]

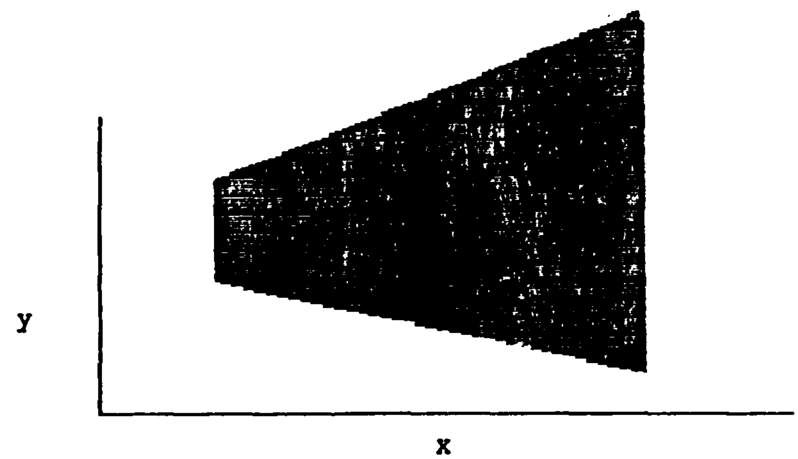


Figure 2.2 Unsatisfactory Funnel-Shaped Residual Plot
[Ref. 2:p. 146]

B. INITIAL MODELS TESTED USING ORDINARY LEAST SQUARES REGRESSION

The first step in this analysis was to test the model currently in use, equation (2), to see if it could be used to predict median rents for each of the thirty costing bands. The model was tested under several different conditions. First, the model was run using all of the available data in each costing band. Next the data was divided by marital status and within each costing band the model was tested using all of the data for those military personnel with dependents and then the model was tested using all of the data for those military personnel without dependents. The model was tested under another condition in which the data was broken down further by paygrades into enlisted, paygrades 1-9, company grade officers, paygrades 10-19, and field grade officers, paygrades 20-23. Thus the model was tested within each costing band according to groupings of the data consisting of enlisted personnel, company grade officers, and field grade officers. Finally the current model was tested within each costing band by grouping the data by a combination of dependency status and paygrade categories. In this case the data in each costing band was first broken into groups by dependency status and within each dependency group, the data was further broken into categories of enlisted, company grade officer and field grade officer.

For each of the above mentioned conditions in which the model was tested, the data was plotted $1/T_{ijk}$ versus $1/P_{ijk}$, the model was tested using Ordinary Least Squares regression procedures, the residuals were plotted versus the fitted values of the median rents, T_{ijk}, and the residuals were tested for normality. (These results are given in the next chapter.)

After reviewing the results of the regression procedures, the initial model did not seem to adequately describe the relationship between total pay and median rental costs nor did it serve as an adequate predictor of fitted values for median rental costs since the assumptions of least squares regression were violated. Evidence of this, includes low R^2 values, non-normality of the residuals, unequal variance of the data, and an indication of significant lack of fit. This, along with cross-validation results are explained in detail in the analysis portion of this thesis. Therefore a new model was postulated. The new model was

$$T_{ijkl} = P_{ijkl}A + B + \epsilon \tag{13}$$

in which all of the variables have the same meaning as in the previous model. The only difference was that the total pay and median rental cost vectors were not inverted. This model was tested in all of the same conditions as the initial model. In other words the model was first tested using all of the data. The data was then broken into groups by dependency status and the regression was run again. The data was next broken into groups by paygrade and ordinary least squares regression was used to test the model using this data. Finally the data was broken into groups by a combination of both by paygrade and by dependency status and the model was again tested.

The results of the regression analysis testing this model again indicated that a systematic deficiency in the model existed; namely that the residuals exhibited a tendency towards nonconstant variance and that the residuals were not normally distributed. The nonconstant variance is explainable by the fact that different medians from different population sizes will have different variances. Thus a weighted least squares approach was attempted in conjunction with this model.

C. WEIGHTED LEAST SQUARES REGRESSION

If a postulated model has been tested using ordinary least squares procedures and examination of the residuals shows a nonconstant variance, a need for some type of transformation on Y is necessary. This transformation will change the e_i's so that the assumptions of ordinary least squares regression will hold. [Ref. 2:p. 147] Generally a nonconstant variance among the residuals indicates that some of the observations are "less reliable" than others. [Ref. 2:p. 108] In this case the e_i's are normally distributed with mean 0 and variance σ_i^2 instead of σ^2. Thus the e_i's have variance of $v_i\sigma^2$. To combat this nonconstant variance term, $v_i\sigma^2$, the entire regression equation

$$Y_i = b_0 + b_1X_i + e_i \tag{14}$$

is multiplied by the weight, $v_i^{-1/2}$. Thus the regression equation becomes

$$\frac{Y_i}{\sqrt{v_i}} = \frac{b_0}{\sqrt{v_i}} + \frac{b_1X_i}{\sqrt{v_i}} + \frac{e_i}{\sqrt{v_i}}. \tag{15}$$

Then $E(e_i/\sqrt{v_i}) = 0$ and the $V(e_i/\sqrt{v_i}) = E(e_i^2/v_i) = v_i\sigma^2/v_i = \sigma^2$. Thus $e_i/\sqrt{v_i} \sim N(0,\sigma^2)$. Therefore the assumptions of ordinary least squares will now hold and ordinary least squares procedures may now be applied to the transformed regression equation.

Evidence of nonconstant variance was seen in the residual plots after OLS regression was applied using the model (13) for most of the costing bands. This implies, as stated above, that some of the observations were less reliable than others.

Intuitively this makes sense in this problem since each observation represents a median cost and not an individual cost. Thus some observations represent the median of 20 or 30 data points while other observations represent the median of only 5 data points. This makes the median of only five data points "less reliable" than the median of a data point which represents 20 or 30 data points.

In order to transform the model into one in which the assumptions of ordinary least squares holds a weight $v_i^{-1/2}$ must be found. In this case the necessary weight is $1/s_i$ where

$$s_i = \frac{1.25\ R_i}{1.35\sqrt{n_i}} . \tag{16}$$

This is the Gaussian-based approximation (Kendall and Stuart, 1967) of the standard deviation of the median. [Ref. 3:p. 16] R_i equals the interquartile range for the ith subset of data and n_i equals the number of data points comprising that median. The reason for this is that if x is N (μ,σ) then the median is $N(\mu, \sqrt{\frac{\pi}{2n}}\sigma)$. From the normal table, for normal distributions, $IQR = 1.35\sigma$ thus

$$S = \left(\frac{\pi}{2}\right)^{\frac{1}{2}} \frac{IQR}{\sqrt{n}\ 1.35} = \frac{1.25}{1.35} \quad \frac{R_i}{\sqrt{n_i}} . \tag{17}$$

Since the variance of $e_i = \sigma_i^2$ and since s is an estimate of σ_i if we transform the e_i's into e_i/s the variance of e_i/s_i should approximate 1. The variance of the transformed e_i's is now estimated to be one and is thus approximately constant. Accordingly, the predictor will have more neatly constant variance. Therefore this assumption of ordinary least squares hold and OLS regression procedures are more appropriately performed on the transformed model.

D. ANALYSIS OF COVARIANCE MODEL

The results of using a weighted least squares approach with the transformed model, equation (15), indicated that this was more sensible than using ordinary least squares, however, another approach also seemed plausible. Analysis of Covariance (ANCOVA) was used in which the grand mean rental cost is adjusted within each group of paygrade, number of bedrooms and house type by the rental cost which is determined by these factors. Thus the ANCOVA model would become

$$Y_{ijk} = X_0B_0 + X_{ijk}B_{ijk} + e_{ijk} \tag{18}$$

in which the X_0B_0 term is the grand mean, the $X_{ijk}B_{ijk}$ term is the total pay for each group of number of bedrooms and house type. The Y_{ijk} term would represent rental cost for each ith person dimensioned by jth type of house and the kth number of bedrooms in the house. This model differs from the previous model in that instead of using medians of total pay within groups of paygrade, house type, bedrooms, and dependency status to predict median rent, the model used the total pay of each individual person in a costing band and the deviations caused by differences in house type and number of bedrooms to predict rent. Thus, in this case, total pay becomes the continuous variable and house type and number of bedrooms become the categorical term. Paygrade and Dependency status were not used as class variables in this model since total pay adequately reflected their values. Their inclusion would cause collinearity to exist among the variables and the regression estimates would then be biased.

E. CROSS VALIDATION TECHNIQUES

Since the weighted least squares approach with the model (15) and the ANCOVA approach (18) using all the data, not the median data, were thought to be the most sensible, a cross validation technique was used in each case to test the parameter estimates and the models. For the weighted least squares model half of the data was used to determine regression coefficients and these coefficients were then used with the other half of the data to calculate new fitted values. These values were then compared to the actual observed values to find estimates of slope and intercept. The equation

$$\sum_{i=1}^{n} (Y_i - \hat{Y}_i)^2 \tag{19}$$

is the residual sum of squares. These values for sum of the squares of the residuals were compared for each half of the data within each of the thirty costing bands for the weighted least squares model. For the ANCOVA model, no provision in SAS was available for the above described cross validation so the data for each costing band was randomly divided in half and the parameter estimates of the coefficients and its standard error for each half of the data were compared (See results in Analysis chapter).

III. ANALYSIS

A. ANALYSIS OF CURRENT MODEL

The current model, equation (2), was run using OLS regression procedures with the data from the thirty costing bands, fifteen of which contained data as specified by the Per Diem Committee and fifteen which contained the additional data obtained from those military members who are in paygrades E5 and above and who share their residences. The results of the regression analysis indicated that this model was suspicious in that it did not adequately fit the data, and would therefore perhaps not produce an adequate prediction of median rent based on total pay.

Initially the current model, equation (2), was run using all of the available data within each costing band. The data was plotted, median rent versus total pay, for each costing band. A spread in the variance of the data was seen and in some instances a curve was present, indicating a nonlinear, instead of linear type of relationship (See Appendix A). The regression analysis results as seen in Table 1 (See Appendix C) showed that in twenty-three out of twenty-eight cases the model had a significant lack of fit. (The data from the other two costing bands contain only two data points and regression analysis is not valid in these two cases.) The residual plots from each of these regressions also exhibited evidence of nonconstant variance which was a further indication that the model was inadequate. (These residual plots can be seen in Appendix A.) The regression results from the costing bands which did not exhibit a significant lack of fit did, however, have residuals which had a nonconstant variance and were not normally distributed. Also the R^2 values in each of these cases were extremely low (less than .32) which again served as an indication that the model only explained at most a third of the variance.

The data within each of the thirty costing bands was then broken into two groups according to dependency status. The "zero" group within each costing band contained the data from those military members who had dependents, and the "one" group contained the data from those military members who claimed no dependents. The regression model, equation (2), was run again using these new groupings of the data. The results of the regression analysis again indicated that this model was entirely inappropriate. Although there was not one case of significant lack of fit, the residual analysis of the data, as seen in Table 2 (Appendix C), from twenty-six out of twenty-eight of the costing bands, illustrated that the residuals were not normally distributed. The residual plots (Appendix A) again show nonconstant variance. Two costing bands, the "zero" labeled data from both costing bands 510 and 512, while indicating that the residuals were normally distributed and had constant variance, not showing significant lack of fit, and according to the F test for significance of the regression exhibiting evidence of a significant regression, had low R^2 values of less than .500 which indicates a lot of unexplained variance. In this instance, with the data broken into groups by dependency status, the model again was inadequate.

Next the data within each of the thirty costing bands was broken into groups according to paygrade. Paygrade 1 consisted of the data from military members who are in paygrades E1 to E9. Paygrade 2 consisted of the data from military members who are in paygrades W1-W4, O1E-O3E, and O1-O3. Paygrade 3 consisted of the data from military members in paygrades O4-O7. Data from paygrades O8 and above are included in the data for paygrade O7. The model, equation (2), was again tested using this data. With the data from the costing bands broken into groups in this manner there were 84 different cases in which the model was tested. In fifty out of eighty-four cases, as can be seen in Table 3 (Appendix C), a significant lack of fit was found. Of those thirty four cases where there was not a significant lack of fit, twenty eight of them had residuals which were not normally distributed and had residual plots which showed evidence of nonconstant variance. The six cases which showed no evidence of lack of fit, and which had residuals which were normally distributed, namely costing band 632 paygrade 3, costing band 530 paygrade 2, costing band 590 paygrade 2, costing band 570 paygrade 3, costing band 650 paygrade 3, and costing band 510 paygrade 2, all had R^2 values less than .330. Thus once again there was strong evidence that even in this case where the data was broken into groupings according to paygrade the model was inadequate.

To further ensure that the model was tested under all appropriate conditions, the data was broken into groups first by dependency status and then further broken into groups by paygrade. Thus the data from each costing band was broken into "zero" or "one" groups as defined previously. The "zero" or "one" groups were then broken into further groupings according to paygrade. Thus the "zero" group, for example, was broken into three further groups, paygrade 1, paygrade 2, and paygrade 3 also as previously defined. Therefore each of the twenty eight costing bands now has two dependency status' and within each dependency status three paygrades associated with it. Thus the model was tested using 168 different sets of data. The results of the regression analysis, using each of these different data sets, can be seen in Table 4 (Appendix C). At an alpha level of .05 three out of the 168 data sets showed significant lack of fit. Of those data sets which did not show a significant lack of fit 105 had residuals which were not normally distributed and which had residual plots which exhibited nonconstant variance. Of those remaining sixty sets of data which show no significant lack of fit and normally distributed residuals, nineteen of them did not have significant overall regressions according to the F test at an alpha level of .05. Of the remaining forty-one data sets which did not show significant lack of fit, which had normally distributed residuals and residual plots showing constant variance (Appendix A), and which had regressions which were significant according to the F test, all had R^2 values which were less than .440. In fact all but four of these remaining data sets had R^2 values which were less than .220. Thus this analysis indicates once again that the original model was woefully inadequate and that in none of the cases where the data was broken into groups according to dependency status, or by paygrade, or by a combination of both would this model adequately predict median rent based on total pay. An adequate model would be one in which there was no lack of fit, the assumptions of Least Squares Regression would hold, and the R^2 values would be high indicating that the model explains the variance of the data.

B. ANALYSIS OF PROPOSED MODEL

The proposed model, equation (13), was tested using the same data from the thirty costing bands as was used to test the current model, equation (2). The results of the regression analysis indicated that in certain cases the use of this model may be more adequate in predicting median rent from total pay; however it must be used with caution.

This model, equation (13), was also tested using the same groupings of data as used in testing the current model, equation (2). Initially, the model was tested using all of the data within each costing band. As in the previous model median rent versus total pay was plotted. The plots indicated an increase in variance but indicated a strong linear relationship. The results of the regression analysis showed that in all twenty-eight instances, see Table 5, a significant lack of fit was evidenced. Next the data within each costing band was broken into groups by dependency status. The data was labeled with a zero if the military member had dependents and the data was labeled with a one if the military member had no dependents or had no dependents and was sharing his or her residence. The plots of median rent versus total pay for each costing band indicated an even stronger linear relationship than in the original plots but they still exhibited evidence of unequal variance. The results of the regression analysis, see Table 6, showed that in eight out of fifty-six cases a significant lack of fit was evidenced. Of the remaining forty-eight cases twelve of these had residuals which were not normally distributed. The residual plots of these data sets showed that nonconstant variance was present. The residual plots of the thirty-six cases which did not have significant lack of fit, which had residuals which were normally distributed, and which were significant regressions at the alpha level .05, also showed some evidence of nonconstant variance. Also, the R^2 values were in the .4 to .5 range with the highest a value of .55. These R^2 values are lower than the ones obtained with the use of the Weighted Least Squares model, seen in the next section, whose purpose is to reduce or eliminate the nonconstant variance of the residuals. Thus prediction was worse for residuals with more variance. See Appendix A. The data within each costing band was next broken into groups by paygrade. This procedure was the same as the one used in testing the current model, paygrade 1 reflected paygrades E1-E9, paygrade 2 reflected paygrades W1-W4, O1E-O3E, and O1-O3, and paygrade 3 reflected paygrades O4-O7 with paygrades O8-O10 included in paygrade O7. When the data was broken into these groups there were many more, fifty-six out of eighty-four, see Table 7 (Appendix C), cases of significant lack of fit. Also because of few data points within each group, the overall regressions in many instances were not significant. Finally the data was broken into groups first by dependency status and then by paygrade. The results of the regression analysis indicated that while there were only eight cases of significant lack of fit, see Table 8 (Appendix C), out of one hundred and sixty-eight, thirty had residuals which were not normally distributed and because of few data points within each group, some of the data sets did not have significant regressions, at the .05 alpha level. Of the regressions on the data sets which did fulfill all of the criteria the R^2 values were low. Thus the model best predicted median rents from total pay when the data was divided by dependency status, however, this model must be viewed as possibly inaccurate since the residual plots indicated evidence of nonconstant variance, and a better model would predict points in an unbiased fashion.

C. ANALYSIS OF WEIGHTED LEAST SQUARES MODEL

Analysis of the Weighted Least Squares Model, equation (15), with Y_i = median rent and X_i = total pay for the ith group, was conducted in the same manner as that of the current model, equation (2), and that of the proposed model, equation (13). The only difference here was that initially the data were randomly divided into two sections in order to use cross validation procedures to compare the sum of the squares of the residuals of the first division of data to the sum of the squares of the errors of the second division of data in which the parameter estimates from the first set of data were used to compute the predicted values for the second set of data. Thus the Weighted Least Squares model was first tested using one half of all of the data available within each costing band, next the model was tested by the half of the data which had been divided into groups by dependency status, then the model was tested by the half of the data which had been broken into groups by paygrade within each costing band, and finally the model was tested with half of the data which had been broken first into groups according to dependency status and then by paygrade.

The results of the regression analysis using half of all of the data within each costing band showed (see Table 9, Appendix C) that a significant lack of fit existed for each costing band. When the data was broken into divisions by dependency status the regression analysis results, see Table

10 (Appendix C), showed that seventeen out of fifty-six cases exhibited significant lack of fit and that nine out of the thirty nine remaining cases did not have normally distributed residuals. Three out of the remaining thirty cases did not have regressions which were significant overall and of the remaining twenty seven cases in which all statistical criteria were met, the R^2 values were typically between .44 and .75. There was no evidence of nonconstant variance in the residual plots and they seemed to appear to have been normally distributed in most cases.

When the data was broken into groups by paygrade, only twenty-five out of a possible eighty four cases, see Table 11 (Appendix C), met all of the criteria of successful regression in that they did not have significant lack of fit, their residuals were normally distributed, and their regressions were significant at the .05 alpha level. The R^2 values, however, ranged from very low to a high of .73. Again the residual plots appeared to indicate a fairly normal distribution with little evidence of nonconstant variance.

The results of the regression analysis, when the data was broken into groups both according to dependency status and paygrade, see Table 12, showed that better than half, 93 out of 168, met the criteria for a successful regression and had R^2 values ranging mostly between .4 and .65. There were however, very few data points in some categories, thus these results must be viewed with suspicion. The statistics for lack of fit, normality of the residuals, and overall significance of the regression all might have been affected by this small number of data points. Therefore this model using a weighted least squares approach, equation (15), performed best when the data within each costing band was divided according to dependency status.

The cross validation technique used here proved to be unsuccessful since only the sum of squares of the residuals (SSR) term were compared, see Table 13 (Appendix C), in the case where all of the data was used within each costing band. The differences between the SSR for the first group of data and the data with predicted values found by employing the parameter estimates from the first set of data for each costing band were quite large. This could be due to the lack of fit which was found or due to the fact that the second group generally had several more data points than the first group. Either of these two factors or a combination of both might have accounted for these tremendous differences.

D. ANALYSIS OF THE ANALYSIS OF COVARIANCE MODEL

The results of the regression analysis on the ANCOVA model indicated that this model may be the best model discussed thus far for use in predicting rent based on total pay (see Table 14, Appendix C). All of the regressions were significant and had R^2 values ranging from .42 to .58 with few values above or below these numbers. The residual plots, normal plots, and stem and leaf diagrams indicated that the residuals were normally distributed (See Appendix C). The significance levels of the normal statistic used to test the normality of the residuals, however, did not, in most cases, indicate that the residuals were normally distributed. However the residuals were fairly symmetric and the sample size was quite large, therefore the model should be fairly robust to the lack of normal fit. The residual plots showed the fairly typical box-like pattern of randomly distributed data. The stem and leaf and normal plots supported a fairly good defense for the normality of the residuals.

In the case of several of the costing bands there did not appear to be a significant difference in the least squares means of the rent pertaining to different house types and different number of bedrooms. This was particularly true between house types 1 and 2 (single family home and townhouse) and also between house types 3 and 4 (apartment or mobile homes). In some costing bands there also appeared to be no significant difference between the least square means of rent predominantly in the case between 3 and 4 bedrooms and less predominantly with 1 and 2 numbers of bedrooms. This indicates, that, when there is not a significant difference between the least squares means between two different types of housing or two residences with different numbers of bedrooms, either of the parameter estimates of two types of housing or number of bedrooms may be used to predict rent. Thus the ANCOVA model which predicted rent based on the total pay associated with number of bedrooms and house type may not have been completely correct in these cases since the mean amount of rent associated with each type of house or number of bedrooms may not have been different.

The cross validation technique used here, since GLM does not provide a vehicle to compute the Sum of Squares of the Residuals from previously calculated parameter estimates, was one in which the data was randomly divided into two sections and after the ANCOVA model was run on both sets of data, the coefficient of the slope parameter estimate and its standard error were compared. A comparison of the slope parameter and its standard error between the two sections of data from each costing band revealed that the model was not at serious fault since in both of the sections of the data the slope parameter estimates were very close and the standard errors were small and similar (See Table 14).

IV. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this thesis was to test and validate the current model, equation (2), to see if it could effectively be used to predict rent based on total pay from the survey data which had been arranged in a newly devised, simplified format. If the current model was deemed invalid or suspicious, then the second purpose of this thesis, was to propose a better, more sensible model which would adequately predict rent based on total pay.

There are two major conclusions from the analysis contained in this thesis. The first conclusion is that the current model, equation (2), should not be used to predict median rents in each paygrade and dependency status when the data is divided into costing bands in the manner previously described. This conclusion is justified by the results of the regression analysis which show that this model is inadequate and may not accurately predict median rent. The second conclusion is that both the weighted least squares model and the ANCOVA model are possible alternative models for use in predicting rent based on total pay. They are shown to be at least as reasonable as the current model, if not better. The ANCOVA model may be preferable for predicting mean rather than a median rent. Also the ANCOVA model may be preferable if the model is used to determine owner equivalency rents. If a median rent figure must be used in the congressionally mandated formula for the computation of VHA the weighted least squares model is preferable.

The secondary purpose of this thesis was to determine if the data from military personnel in paygrades E5 and above who share housing should be used or discarded since these data had been previously discarded on the basis of a policy decision without any statistical backing. Curiously enough, there seems to be no systematic difference across all of the models investigated in relation to the addition of this data. In some instances when regression analysis results from the same two costing bands, one which contained the additional data and one which did not contain the additional data, were compared, lack of fit was affected. Also in some cases the significance of the regression would be affected, or in some cases the R^2 values would go up or down. Thus there was no instance in which, for example, all of the R^2 values would go up or all of the significance of regression statistics would suddenly increase or decrease for a certain model. The important consideration here was that the additional data did affect R^2 values; it did affect the lack of fit, significance value statistics, and the normality of residuals. Thus while the additional data did not have a systematic effect, it did have an effect and this aspect should not go overlooked when a decision is made whether or not to include these data when VHA rates are actually calculated.

There are several recommendations for further analysis. First, the way in which the data is broken into costing bands must be investigated. Perhaps a better method or a different dollar figure could be used to divide the data into costing bands. If a different method is used and the data contained in each costing band is different, analysis of each of the regression models discussed in this paper must be redone. If the data is put into different costing bands other than the ones used in this thesis, the models discussed may be more or less accurate predictors of median rent. In either case the original data must be investigated and natural breaks in the data must be discovered in order to achieve the best placement of data into costing bands. A second area which requires further analysis concerns the ANCOVA model. The data, before testing the ANCOVA model, should be divided into groups either by dependency status or by paygrade. A better fit of the regression model may be accomplished in either case. Other models should also be investigated as possible solutions to the problem. Perhaps instead of the weighted least squares, another transformation on the data could be devised which may provide a better model. Since there is an indication of non-normal errors, perhaps GLIM (Generalized Linear Models) could be used for more accurate prediction [Ref. 4]. Further Analysis and other models should still be investigated as possible predictors of median rents for the VHA.

APPENDIX A. SCATTER AND RESIDUAL PLOTS

A. USING DATA SET 540 AS AN EXAMPLE, SCATTER AND RESIDUAL PLOTS FOR THE CURRENT MODEL.

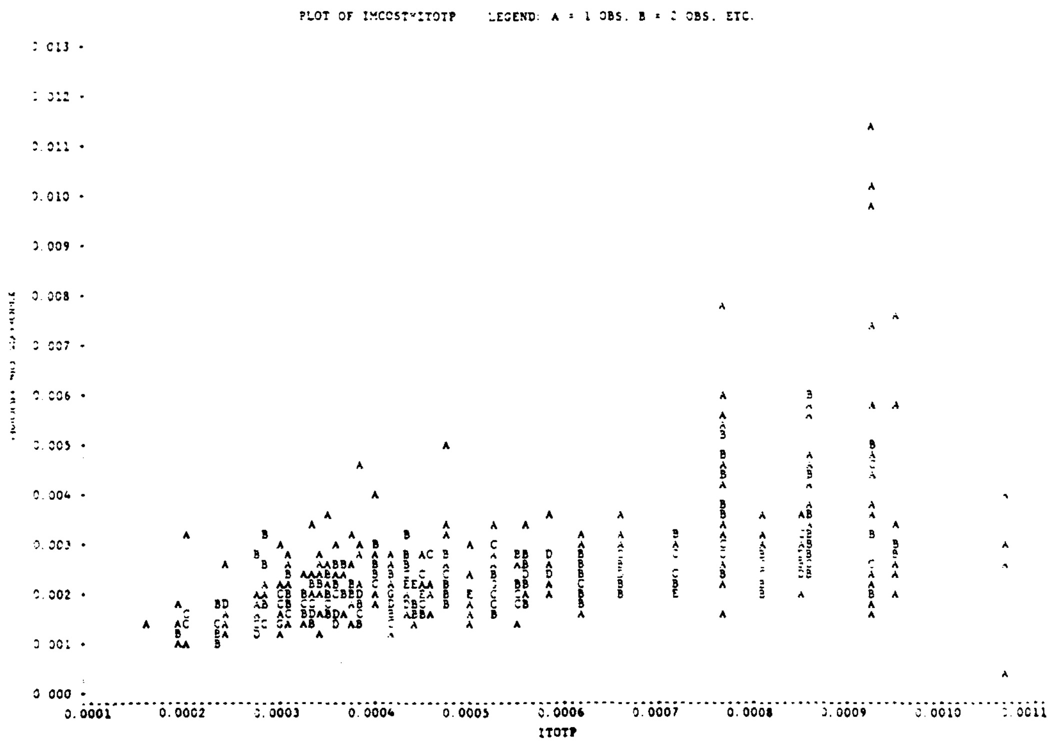


Figure 1. Data Set 540 1/Median Rent vs. 1/Total Pay.

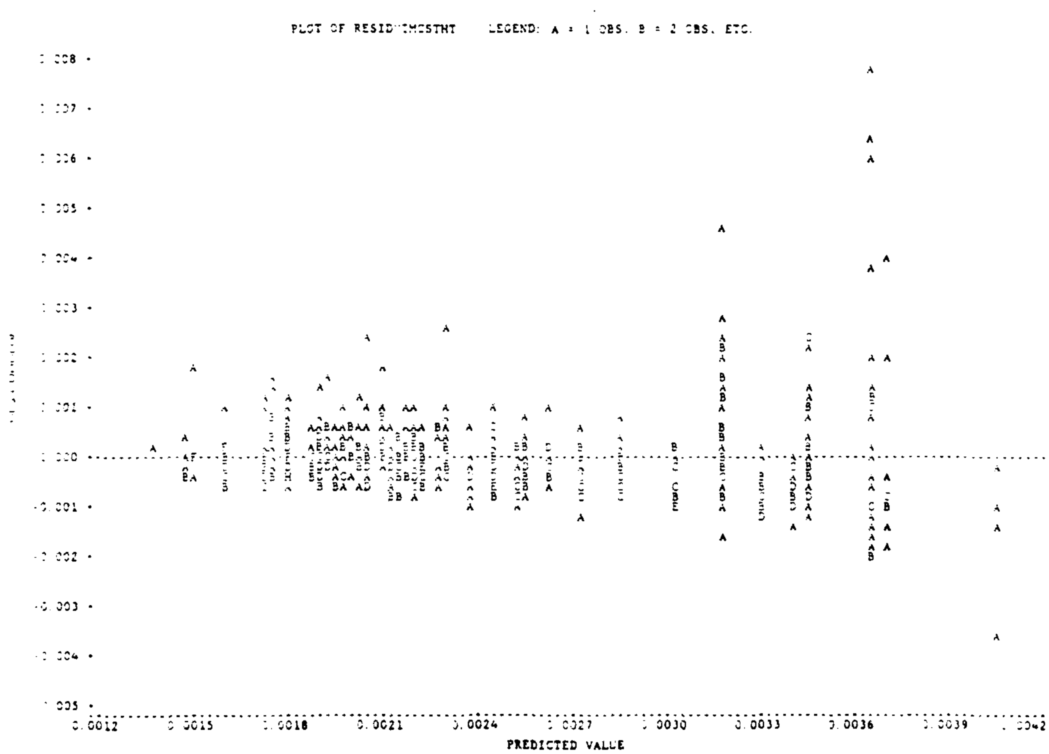


Figure 2. Data Set 540. Residuals vs. Predicted Values.

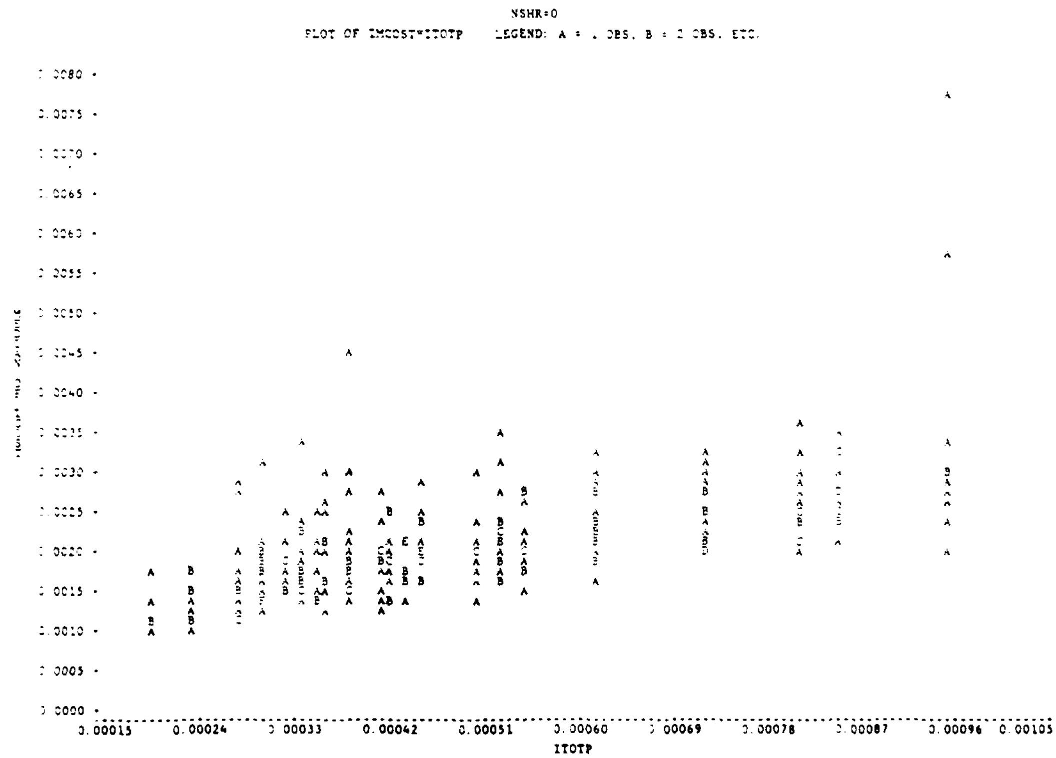


Figure 3. Data Set 540.
Dependency Status '0'.
1/Median Rent vs. 1/Total Pay.

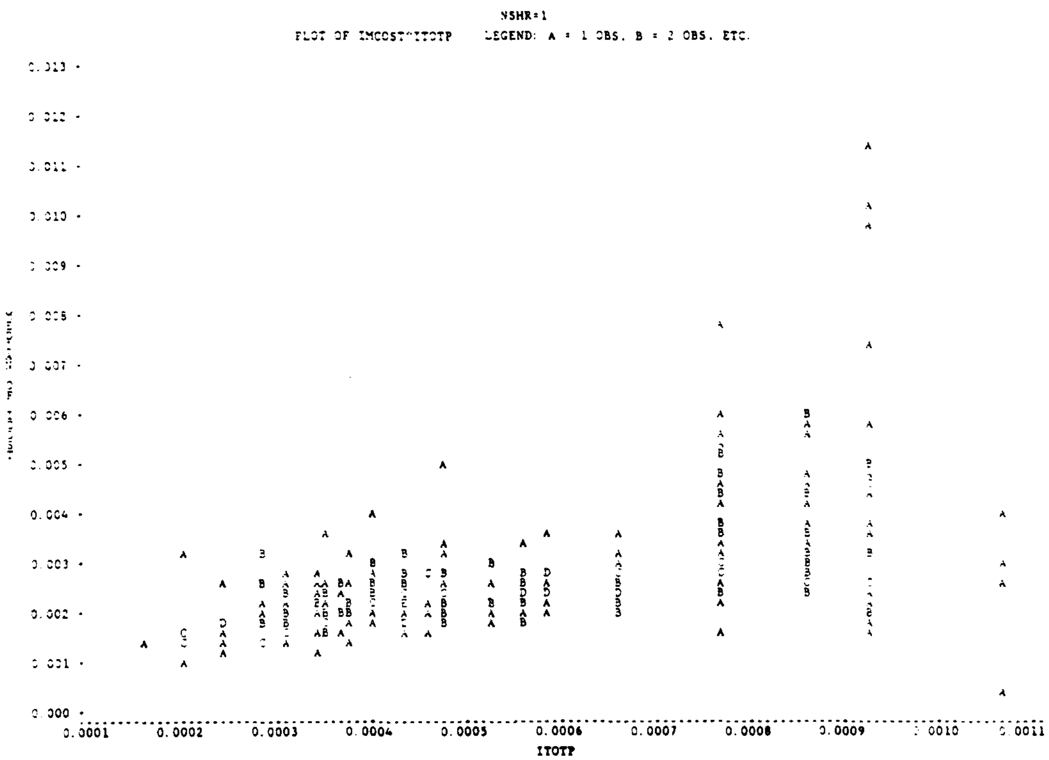


Figure 4. Data Set 540.
Dependency Status '1'.
1/Median Rent vs. 1/Total Pay.

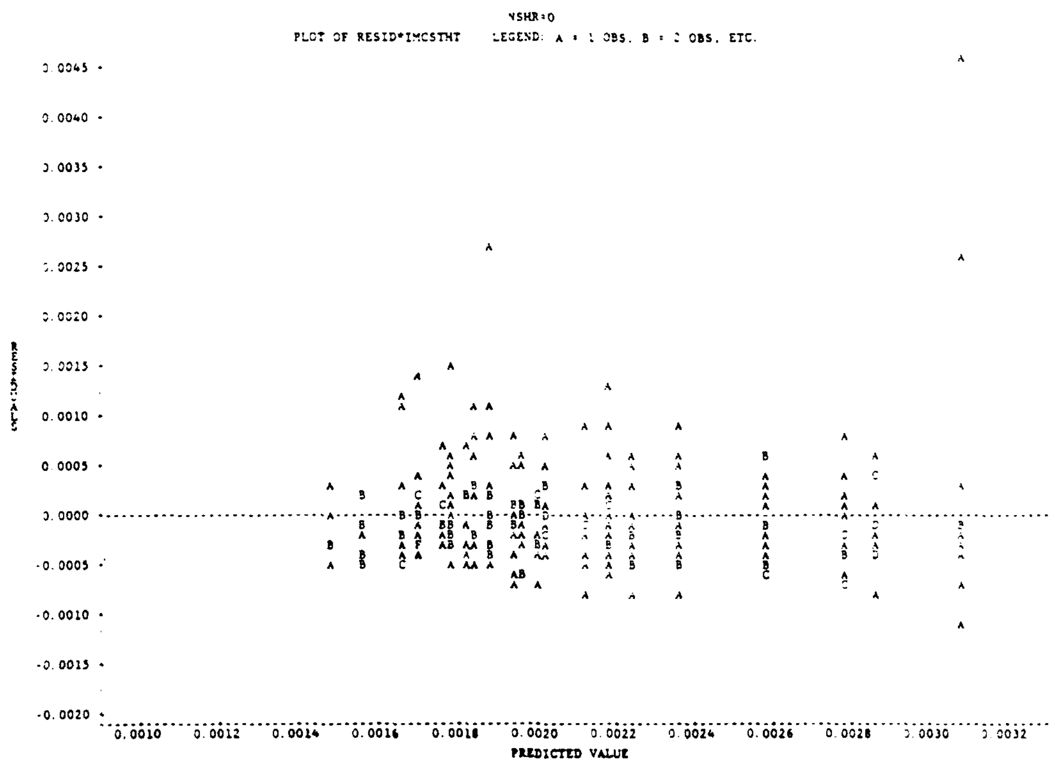


Figure 5. Data Set 540.
Dependency Status '0'.
Residuals vs. Predicted Values.

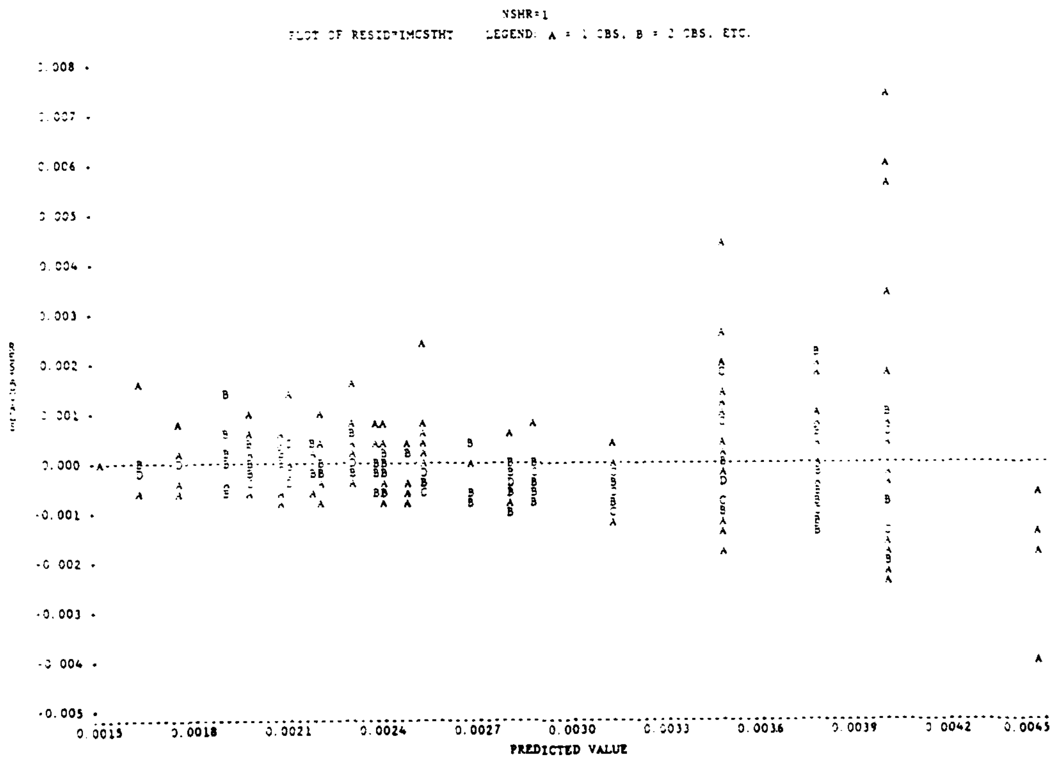


Figure 6. Data Set 540.
Dependency Status '1'.
Residuals vs. Predicted Values.

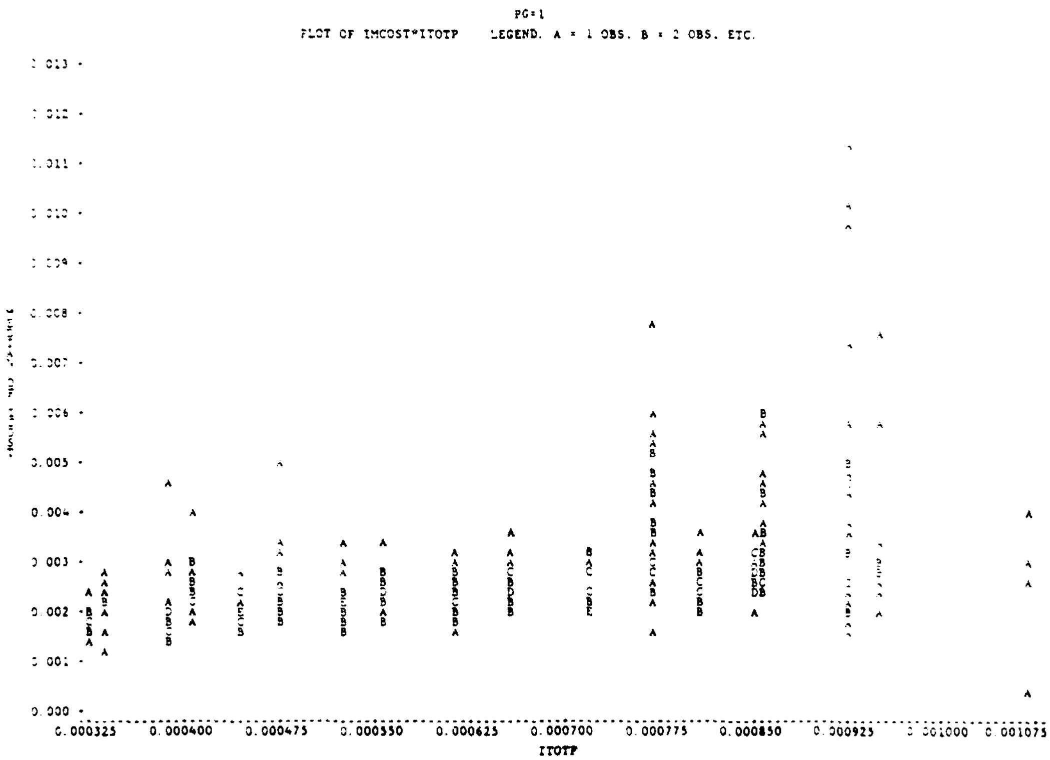


Figure 7. Data Set 540.
Paygrade '1'.
1/Median Rent vs. 1/Total Pay.

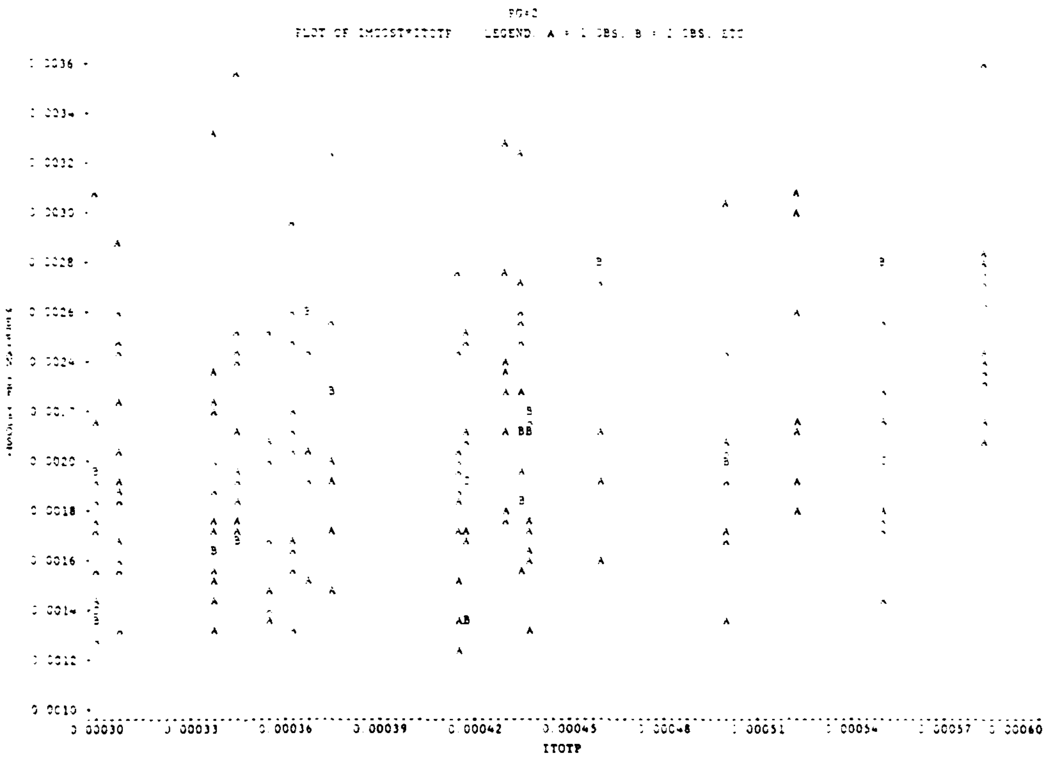


Figure 8. Data Set 540.
Paygrade '2'.
1/Median Rent vs. 1/Total Pay.

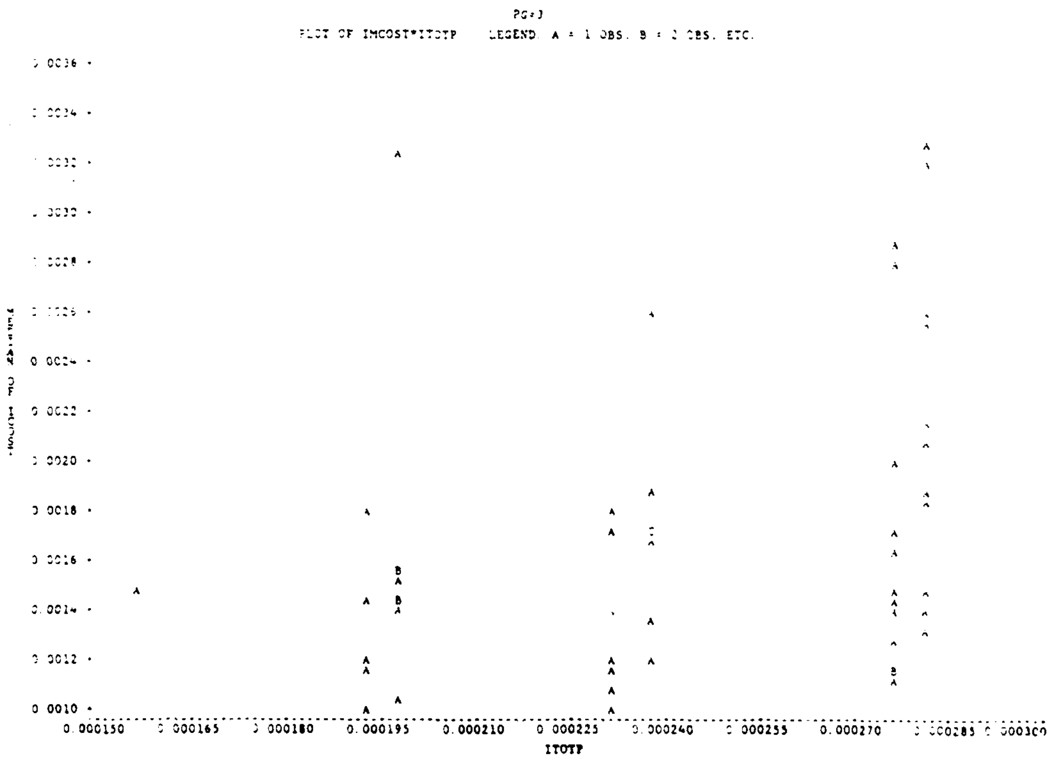


Figure 9. Data Set 540.
Paygrade '3'.
1/Median Rent vs. 1/Total Pay.

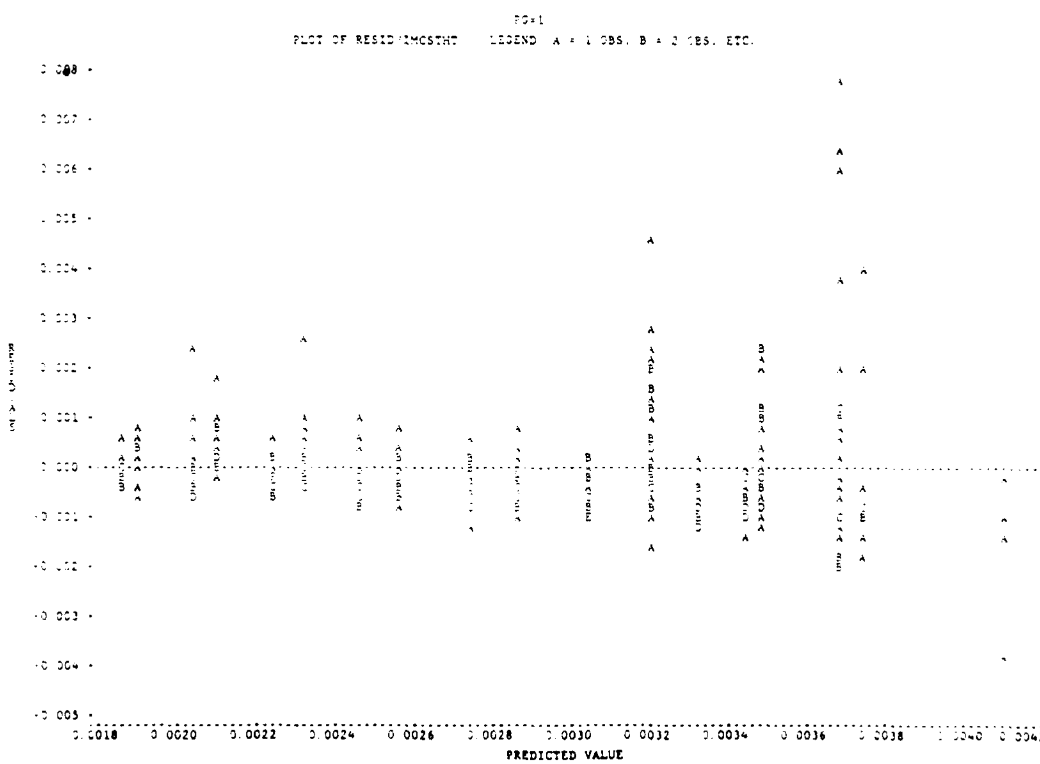


Figure 10. Data Set 540.
Paygrade '1'.
Residuals vs. Predicted Values.

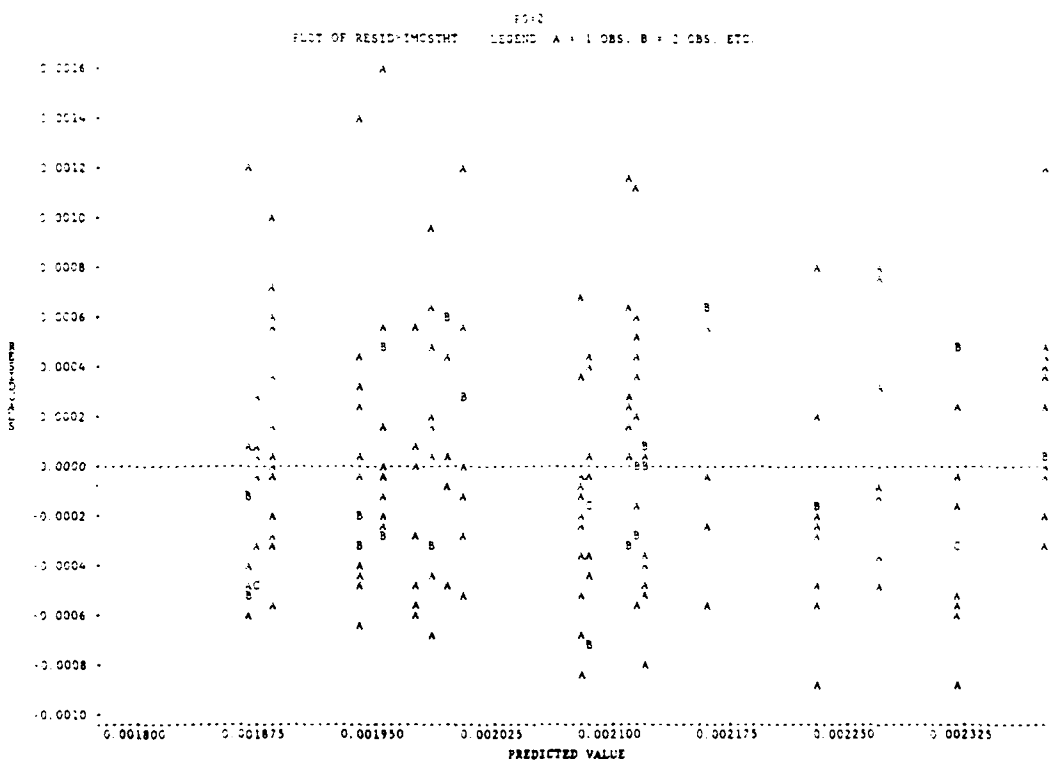


Figure 11. Data Set 540.
Paygrade '2'.
Residuals vs. Predicted Values.

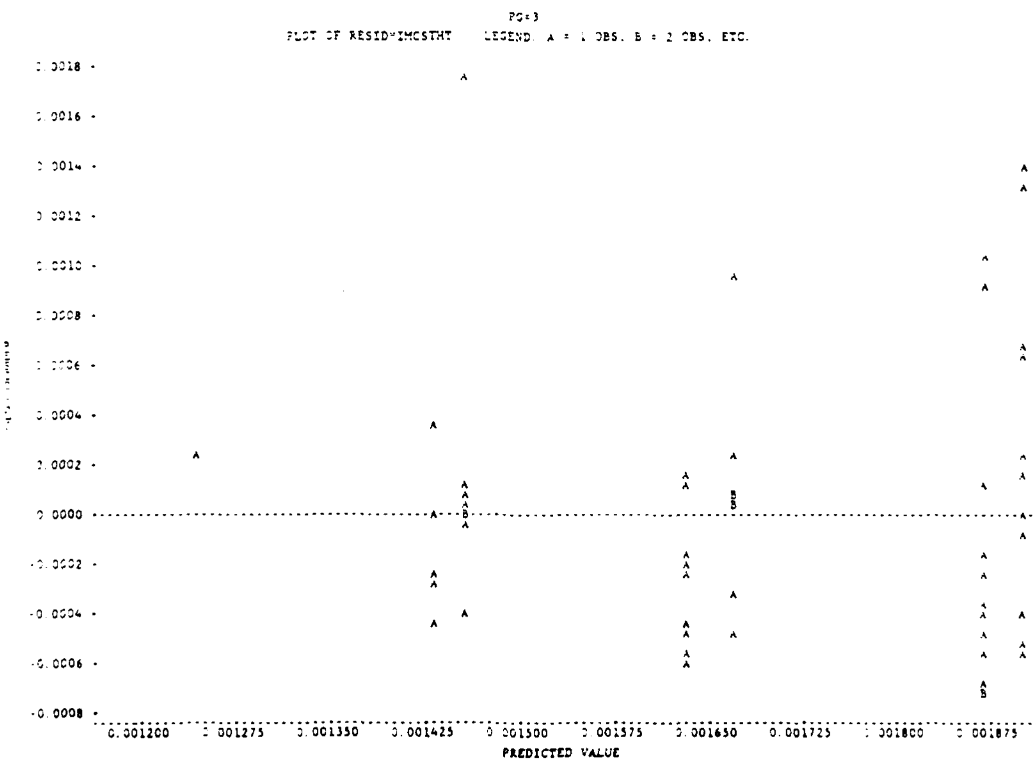


Figure 12. Data Set 540.
Paygrade '3'.
Residuals vs. Predicted Values.

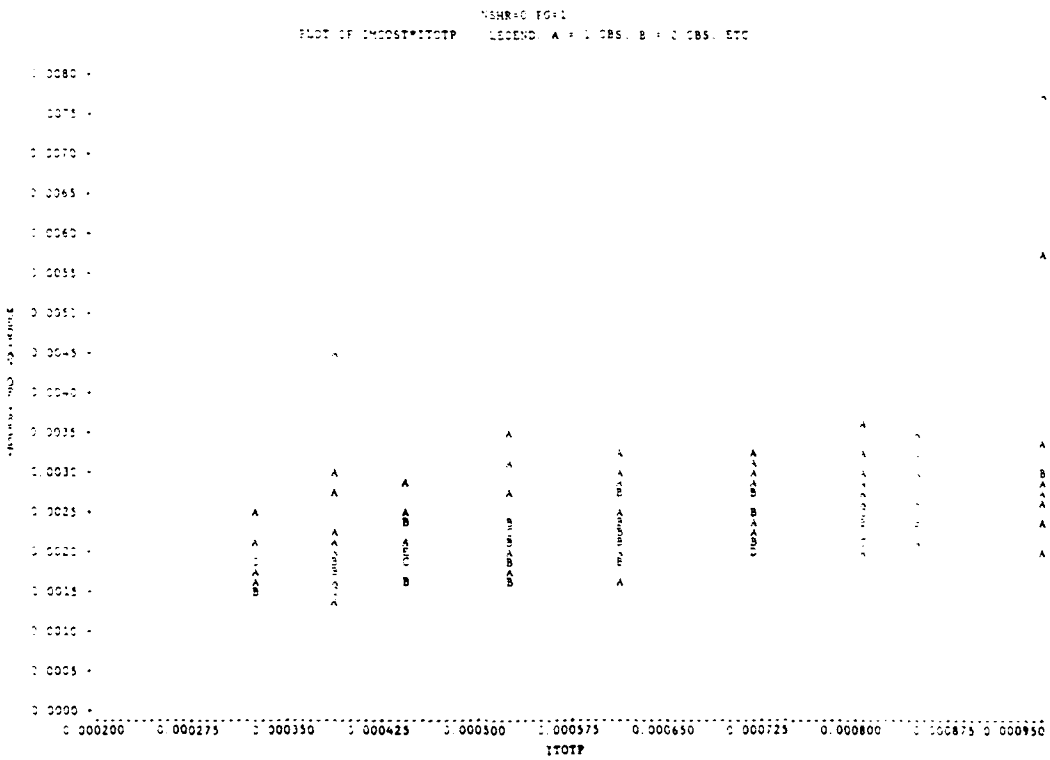


Figure 13. Data Set 540.
Dependency Status '0' and Paygrade '1'.
1/Median Rent vs. 1/Total Pay.

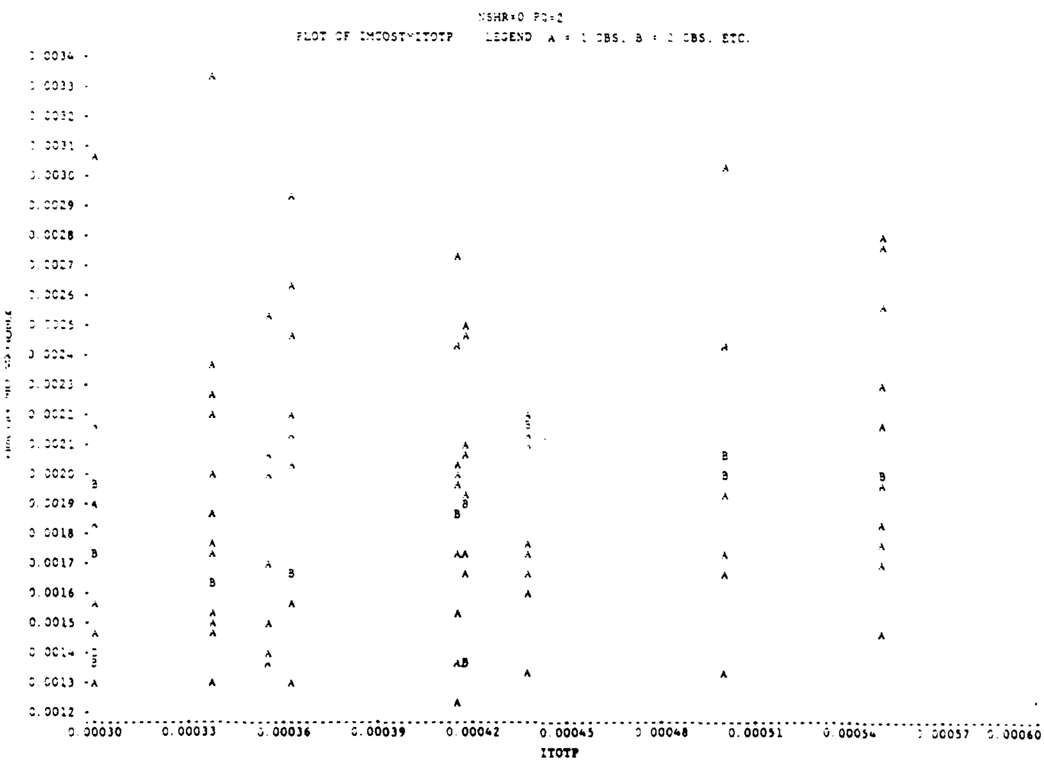


Figure 14. Data Set 540.
Dependency Status '0' and Paygrade '2'.
1/Median Rent vs. 1/Total Pay.

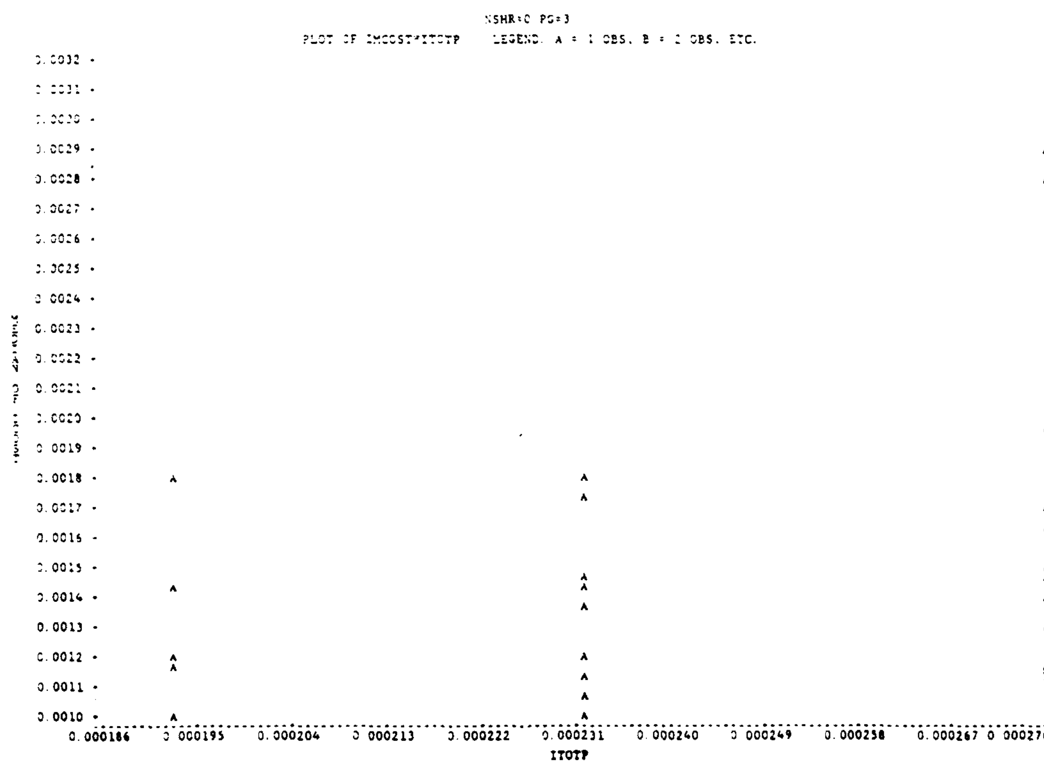


Figure 15. Data Set 540.
Dependency Status '0' and Paygrade '3'.
1/Median Rent vs. 1/Total Pay.

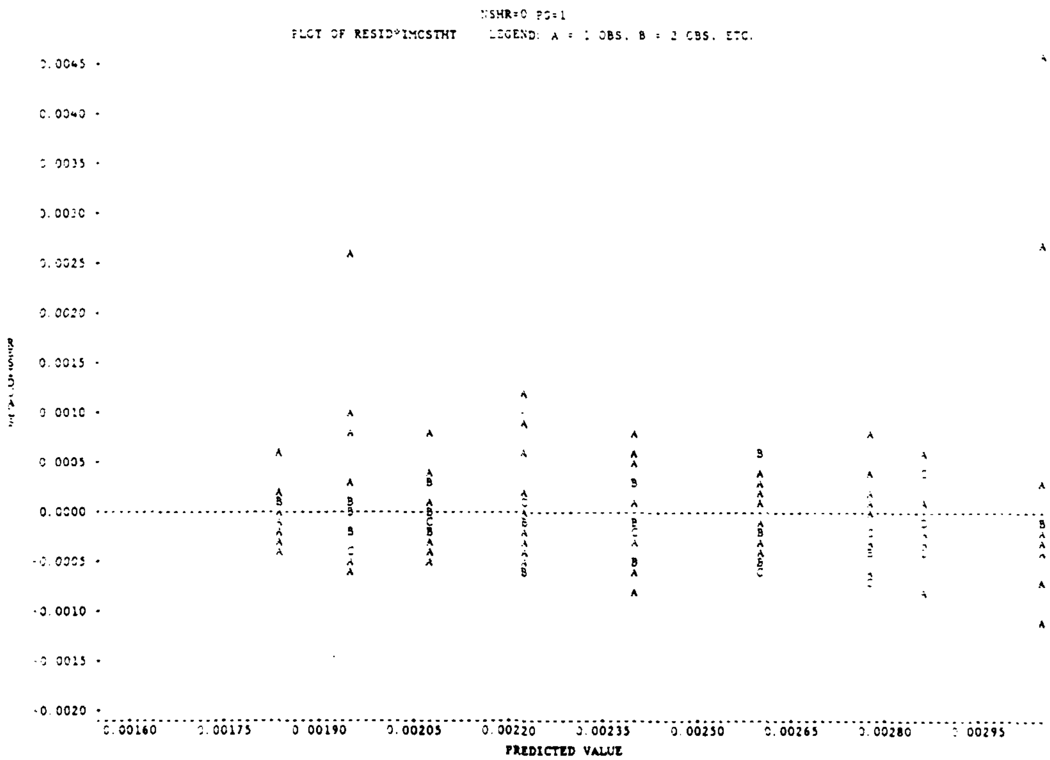


Figure 16. Data Set 540.
Dependency Status '0' and Paygrade '1'.
Residuals vs. Predicted Values.

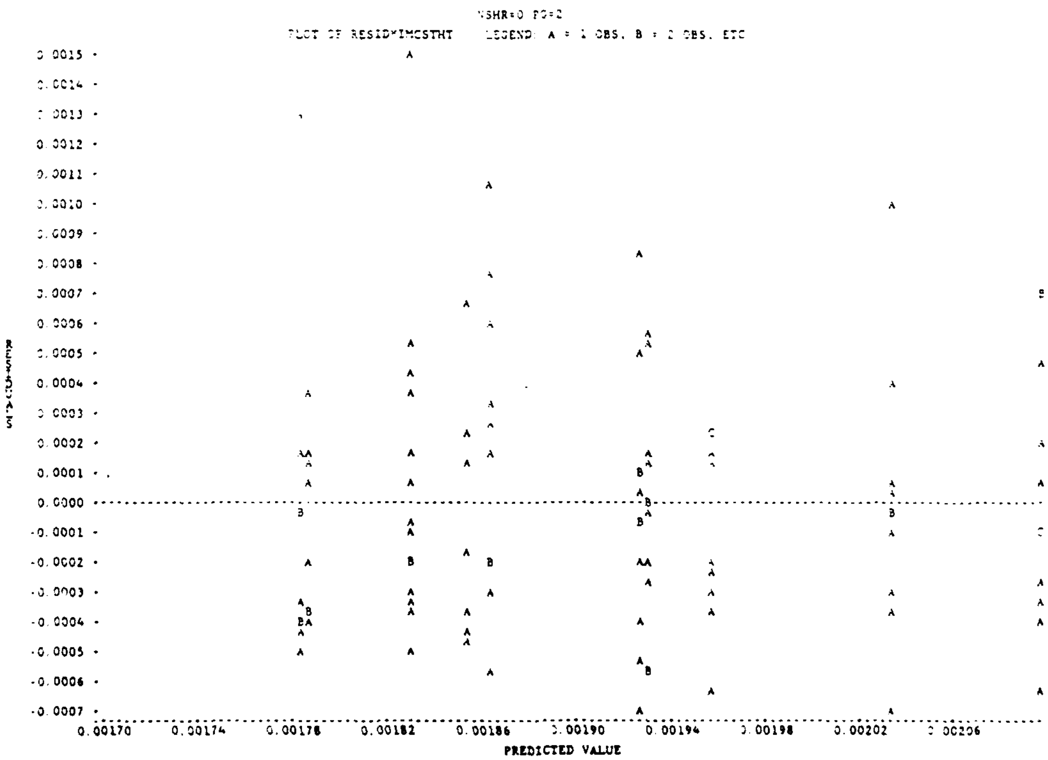


Figure 17. Data Set 540.
Dependency Status '0' and Paygrade '2'.
Residuals vs. Predicted Values.

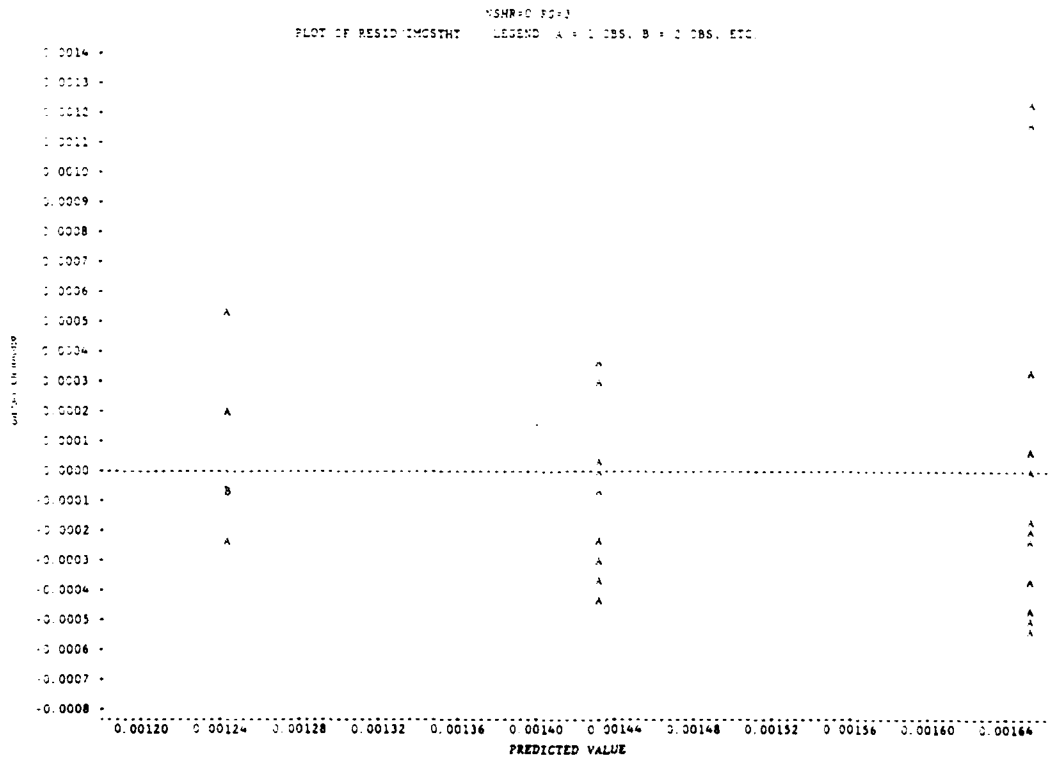


Figure 18. Data Set 540.
Dependency Status '0' and Paygrade '3'.
Residuals vs. Predicted Values.

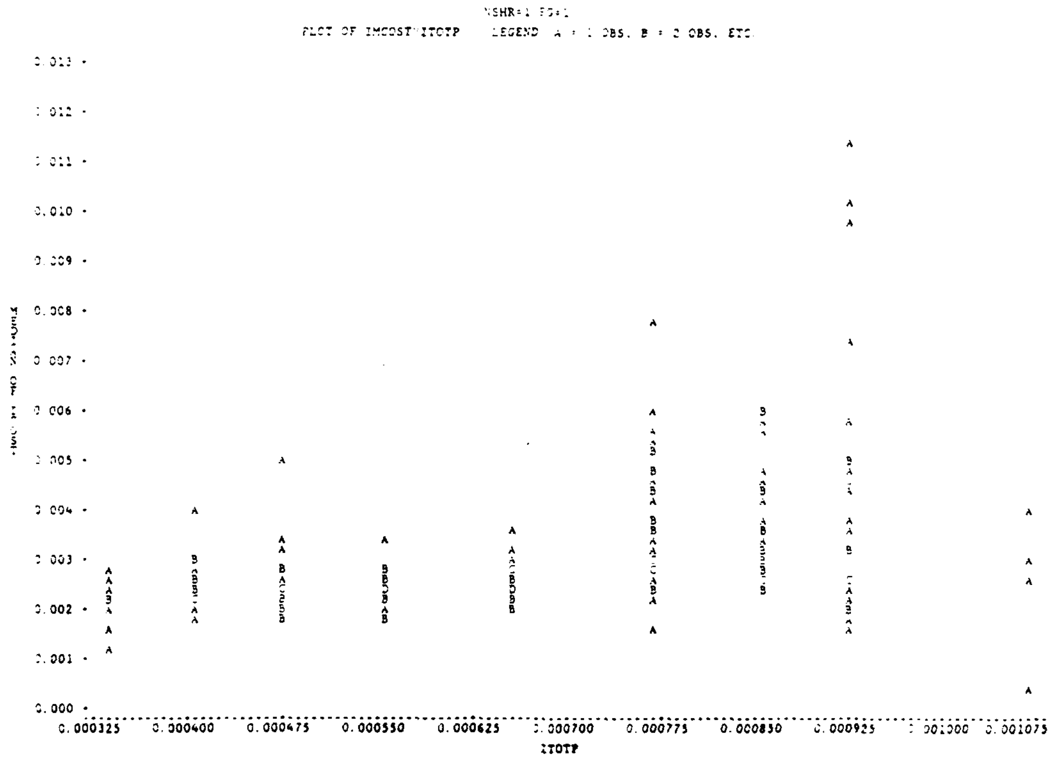


Figure 19. Data Set 540.
Dependency Status '1' and Paygrade '1'.
1/Median Rent vs. 1/Total Pay.

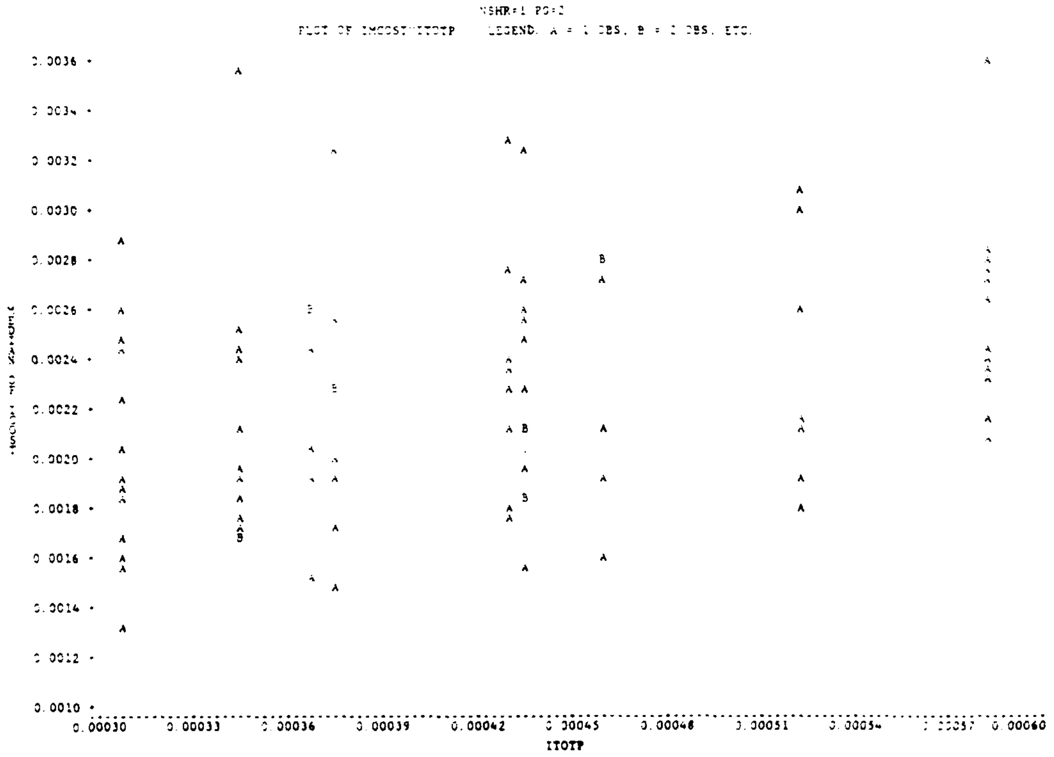


Figure 20. Data Set 540.
Dependency Status '1' and Paygrade '2'.
1/Median Rent vs. 1/Total Pay.

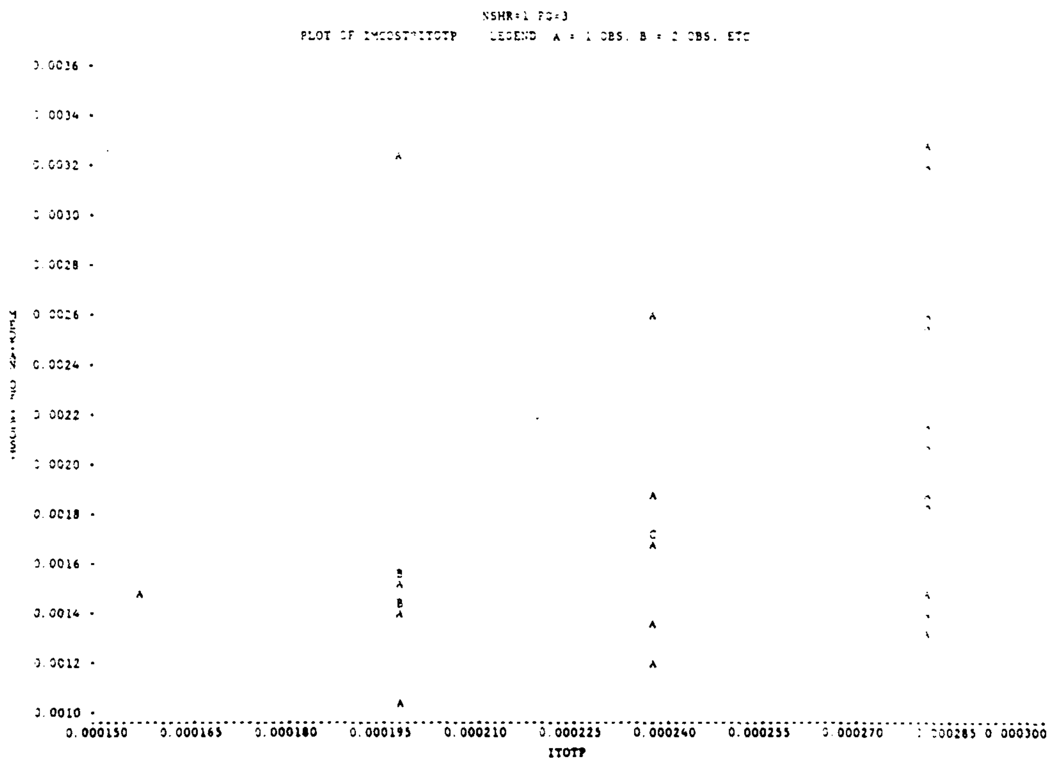


Figure 21. Data Set 540.
Dependency Status '1' and Paygrade '3'.
1/Median Rent vs. 1/Total Pay.

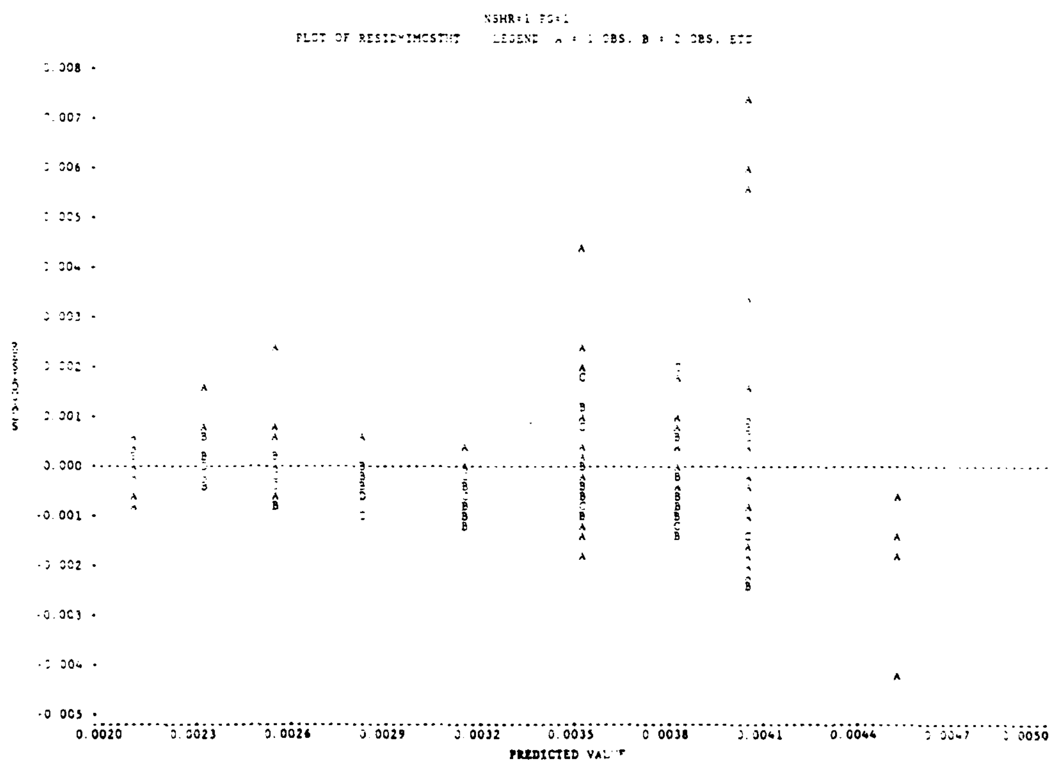


Figure 22. Data Set 540.
Dependency Status '1' and Paygrade '1'.
Residuals vs. Predicted Values.

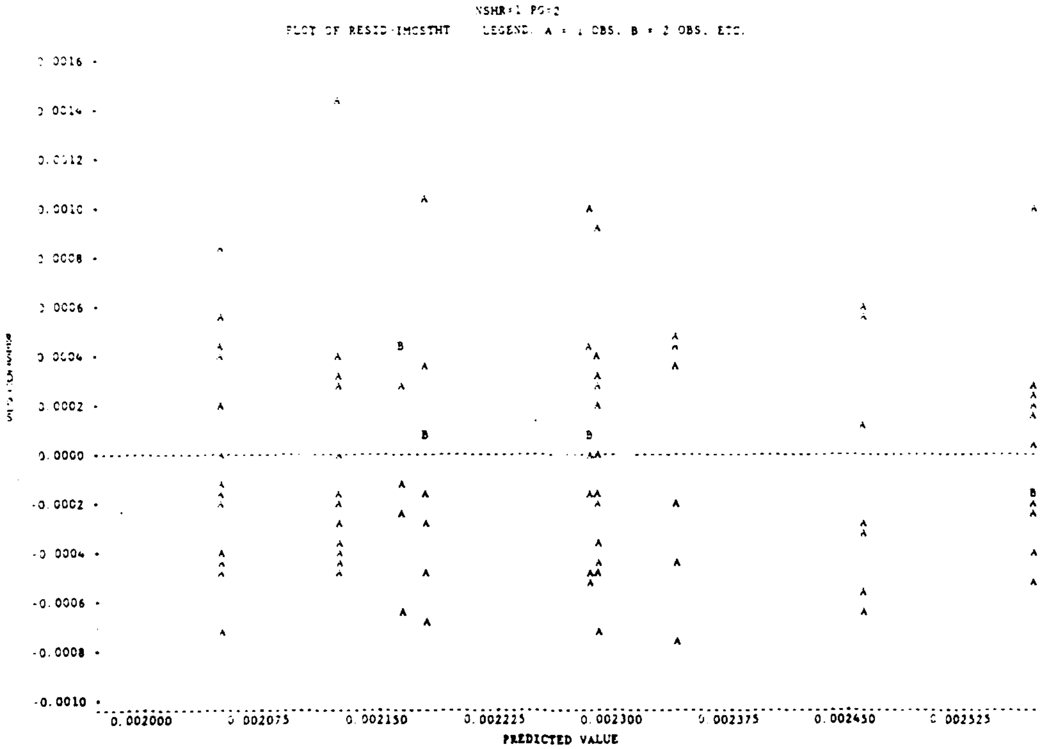


Figure 23. Data Set 540.
Dependency Status '1' and Paygrade '2'.
Residuals vs. Predicted Values.

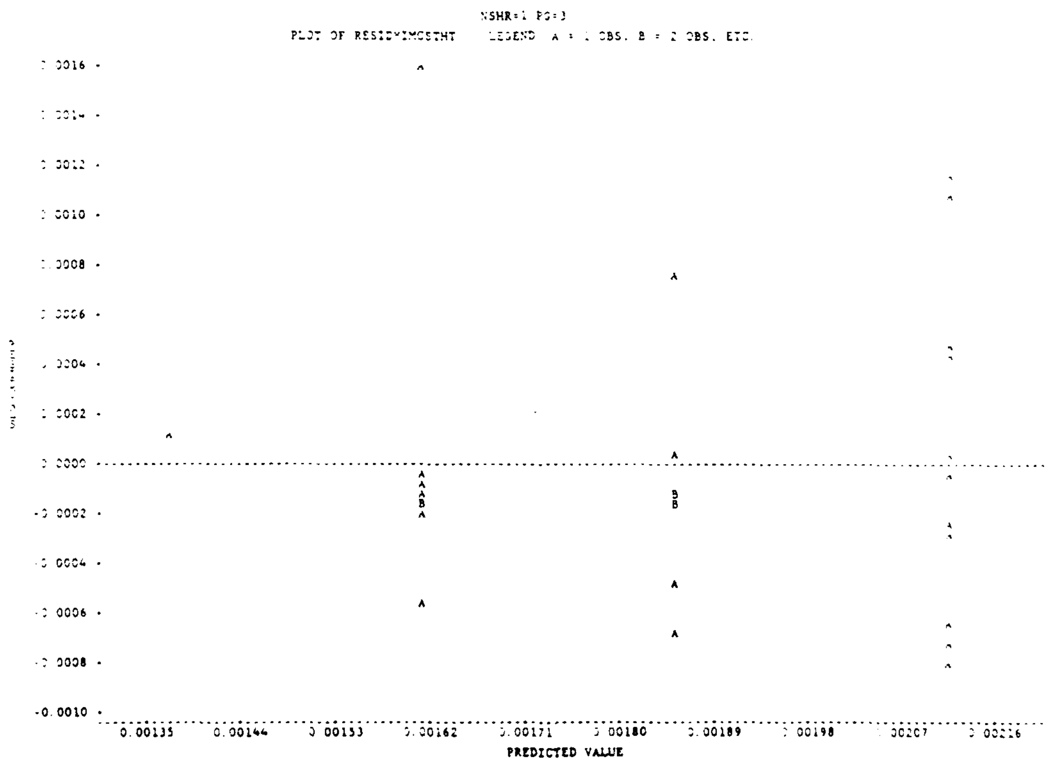


Figure 24. Data Set 540.
Dependency Status '1' and Paygrade '3'.
Residuals vs. Predicted Values.

B. USING DATA SET 540 AS AN EXAMPLE SCATTER PLOTS AND RESIDUAL PLOTS FOR THE PROPOSED MODEL.

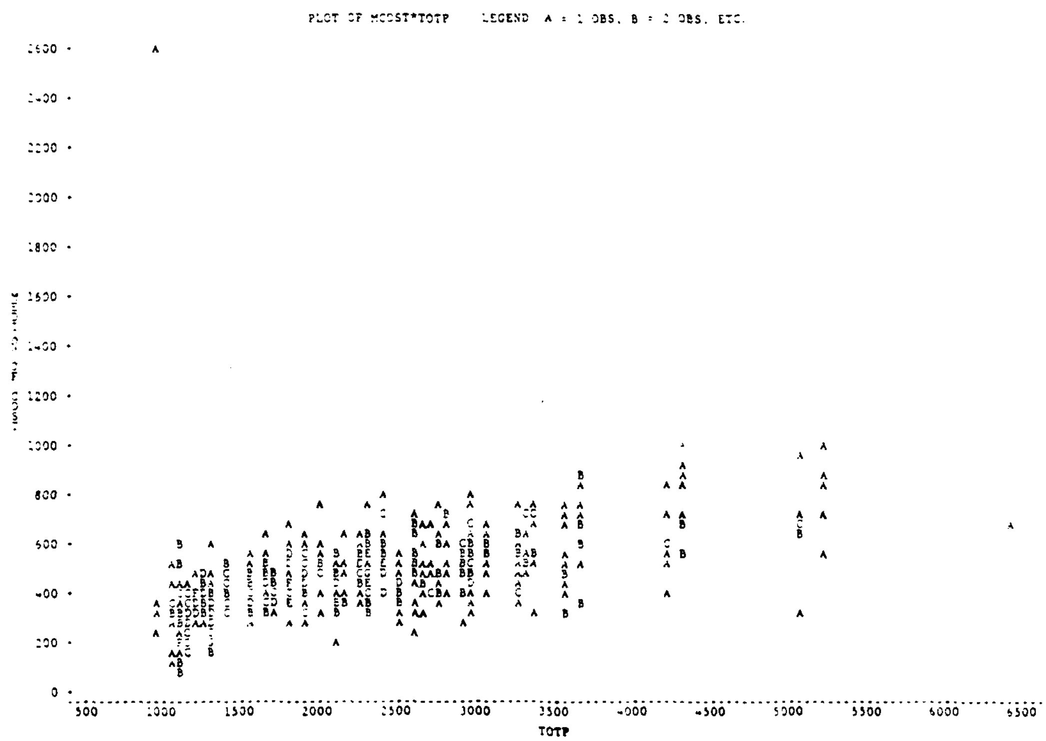


Figure 25. Data Set 540. Median Rent vs. Total Pay.

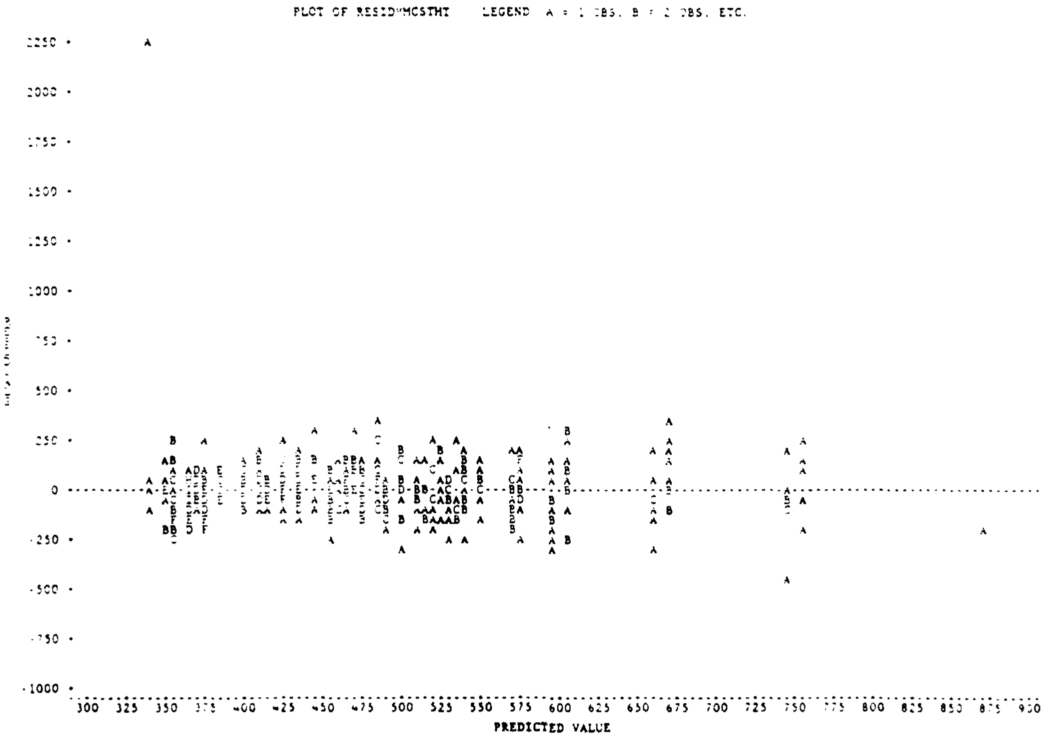


Figure 26. Data Set 540. Residuals vs. Predicted Values.

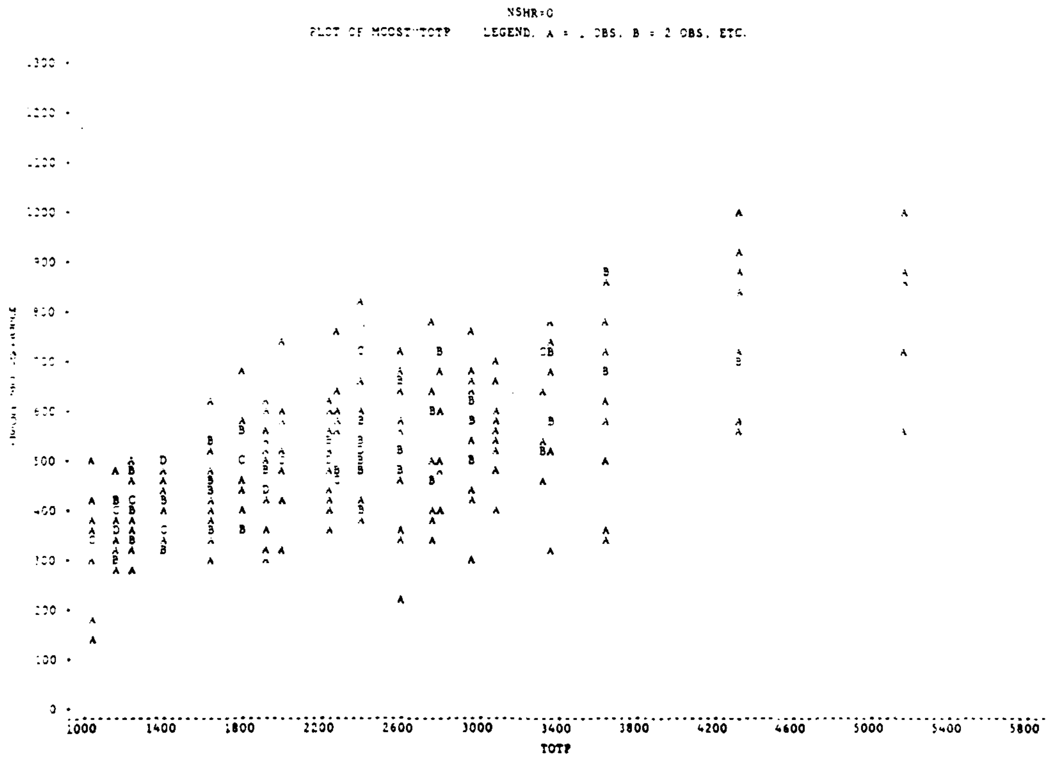


Figure 27. Data Set 540.
Dependency Status '0'.
Median Rent vs. Total Pay.

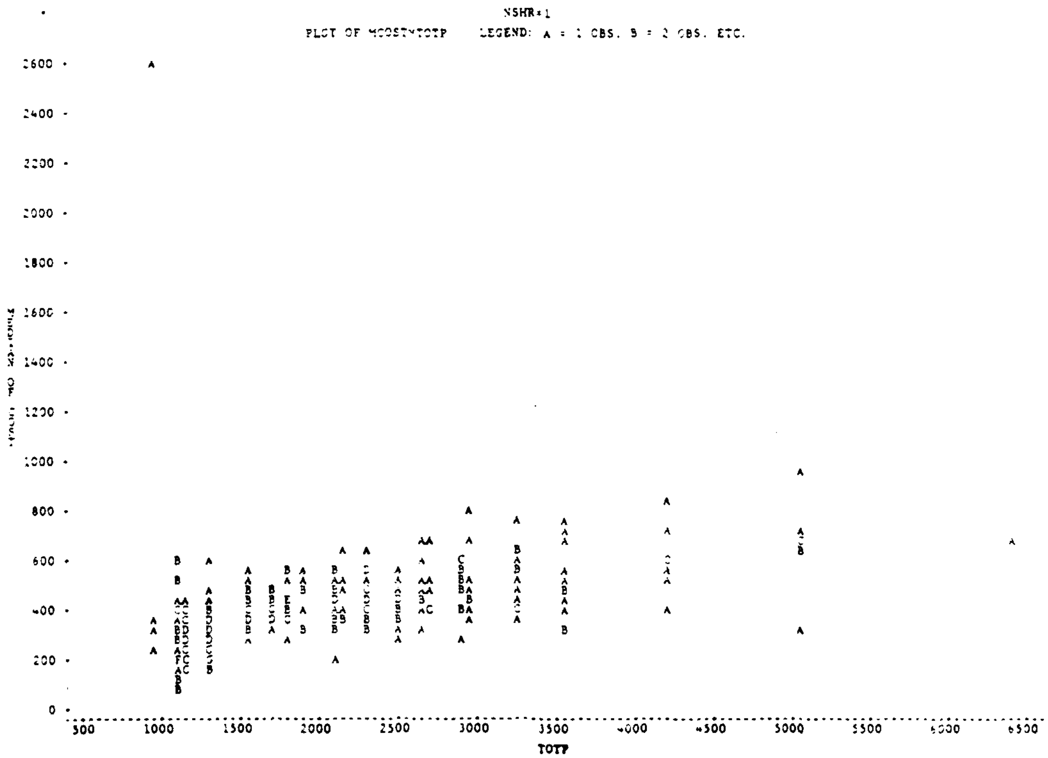


Figure 28. Data Set 540.
Dependency Status '1'.
Median Rent vs. Total Pay.

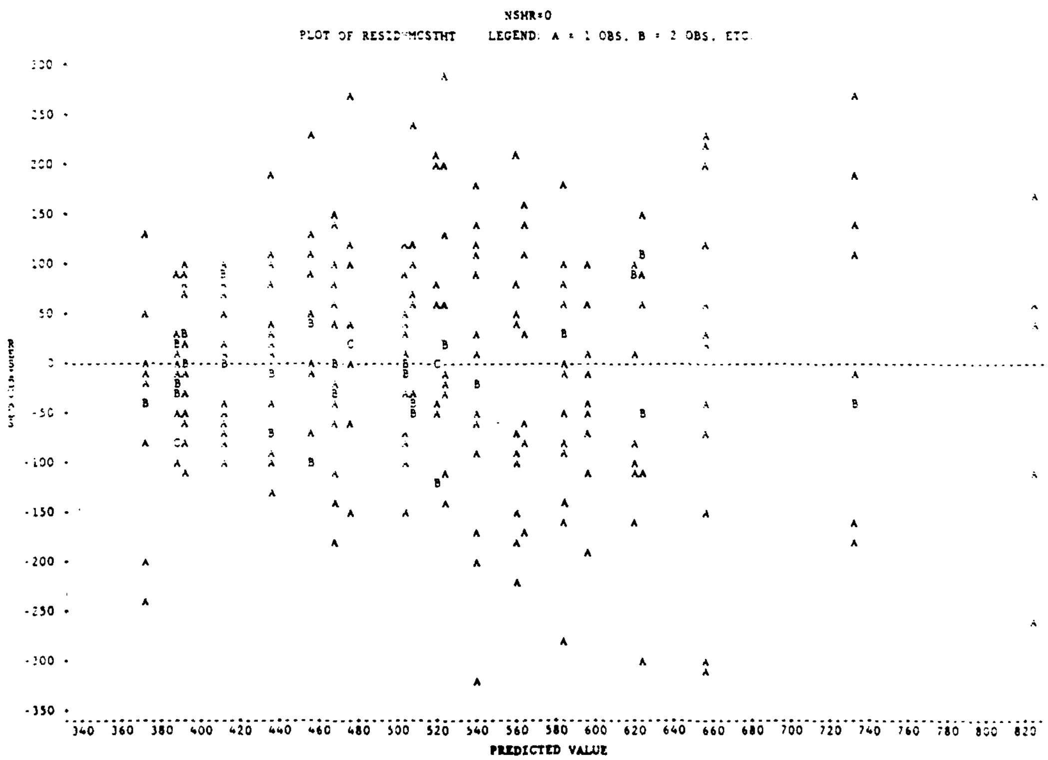


Figure 29. Data Set 540.
Dependency Status '0'.
Residuals vs. Predicted Values.

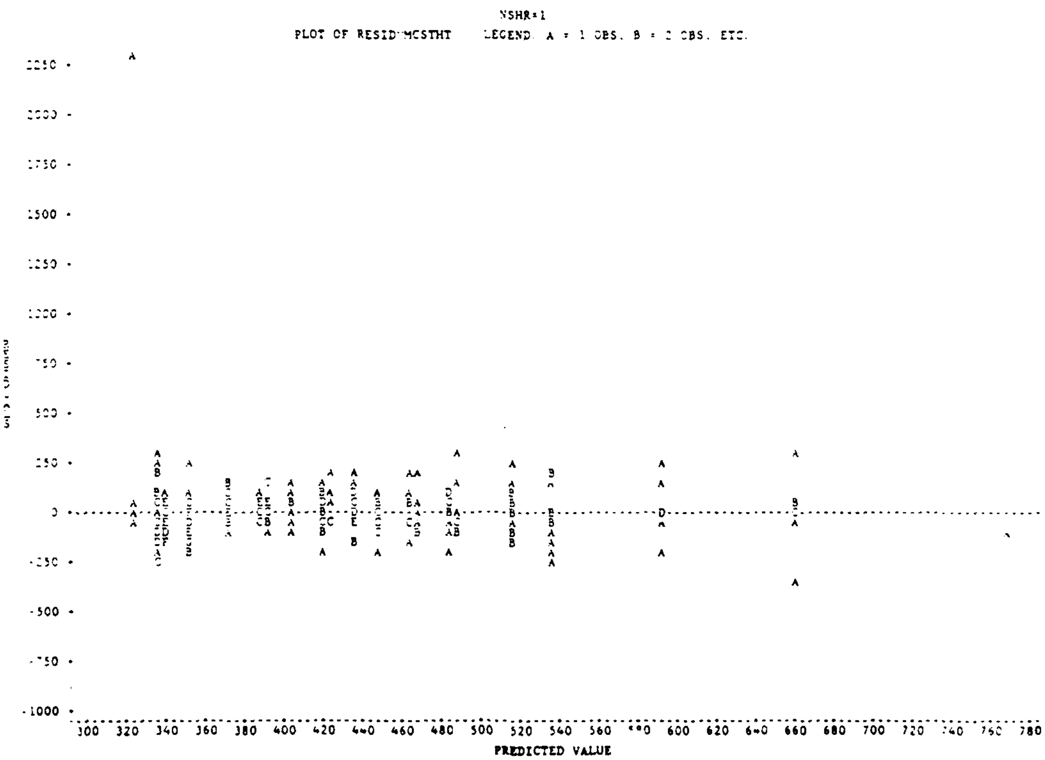


Figure 30. Data Set 540.
Dependency Status '1'.
Residuals vs. Predicted Values.

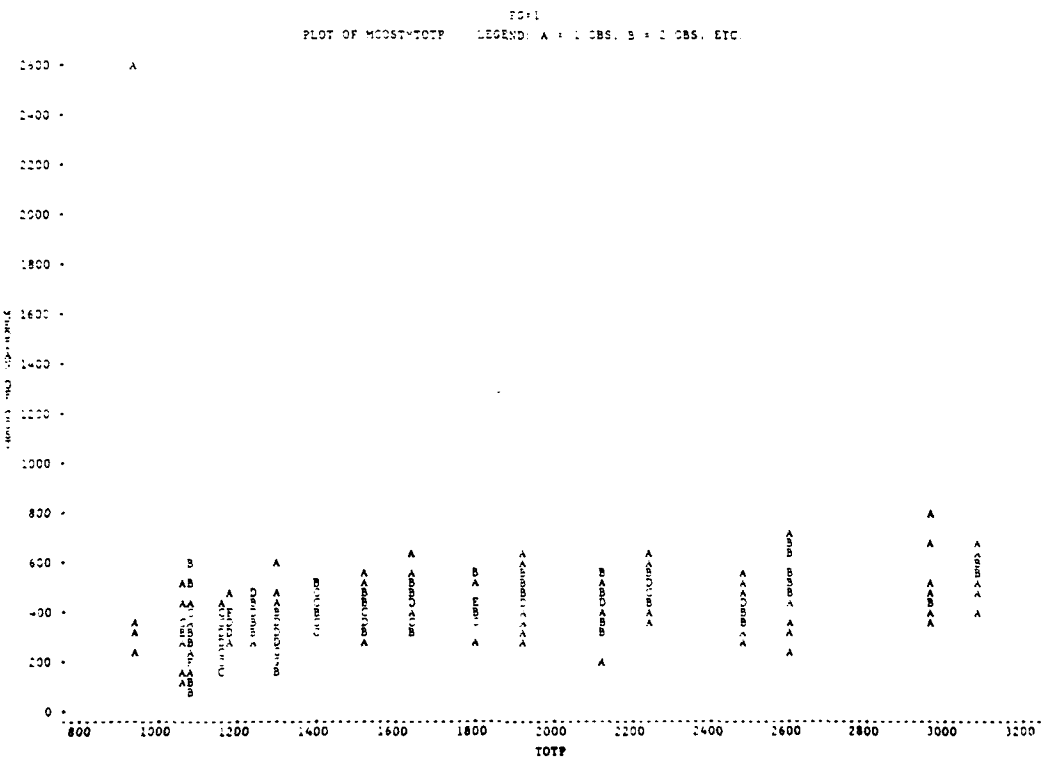


Figure 31. Data Set 540.
Paygrade '1'.
Median Rent vs. Total Pay.

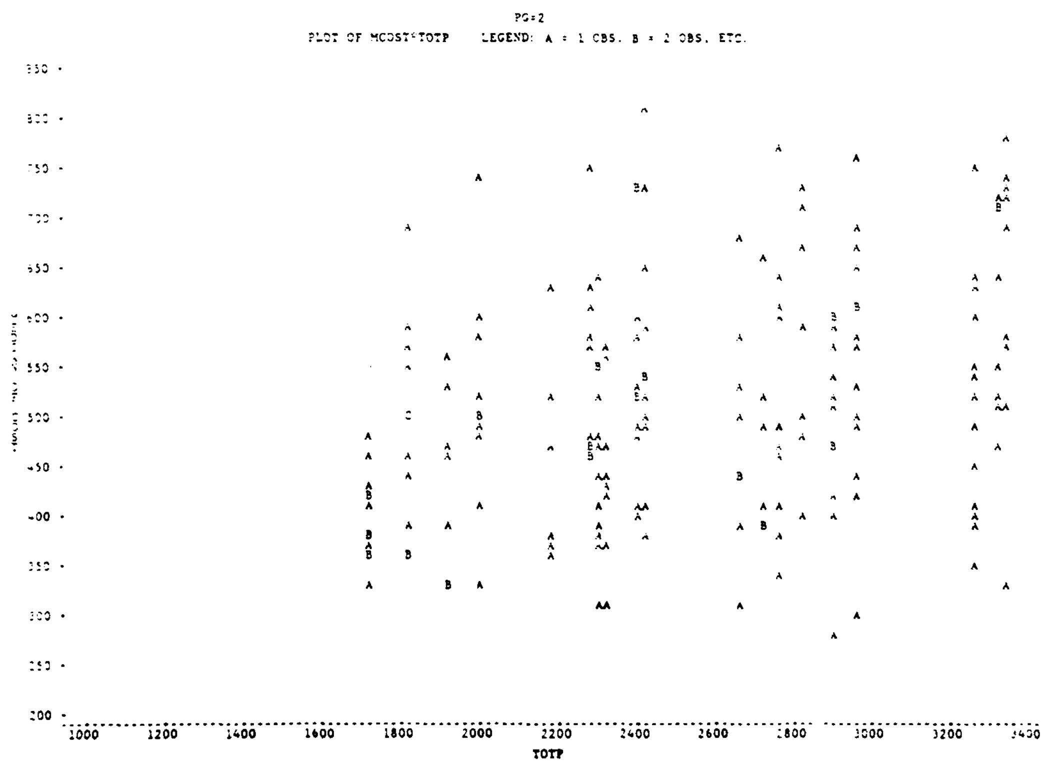


Figure 32. Data Set 540.
Paygrade '2'.
Median Rent vs. Total Pay.

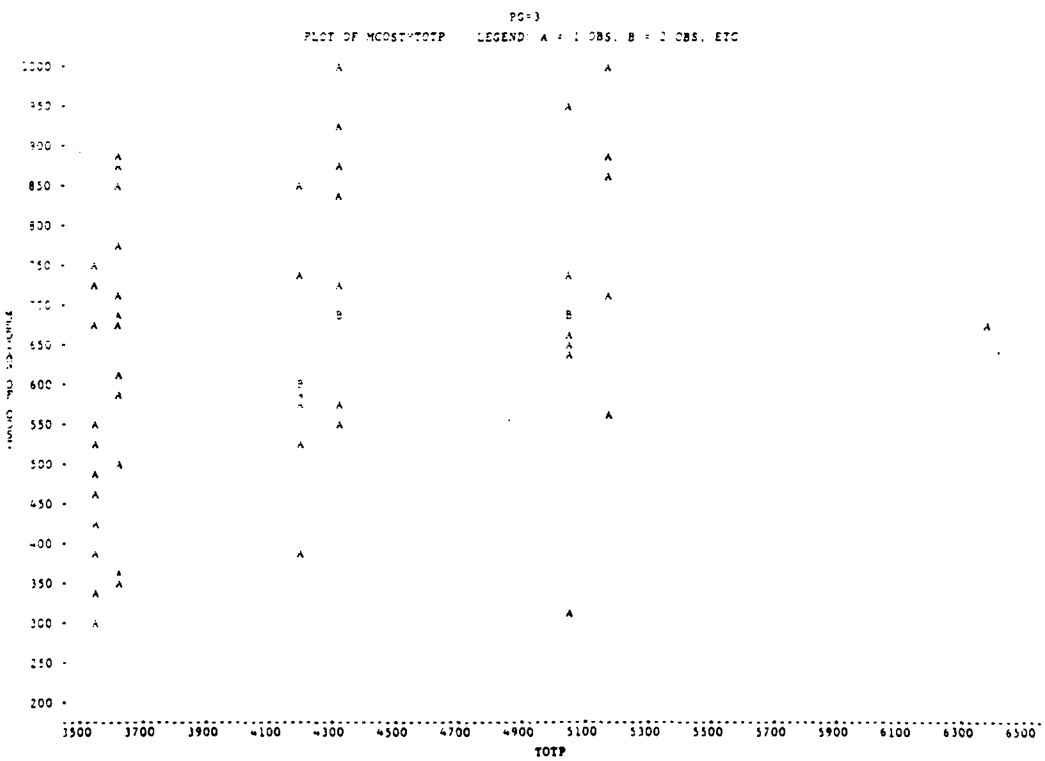


Figure 33. Data Set 540.
Paygrade '3'.
Median Rent vs. Total Pay.

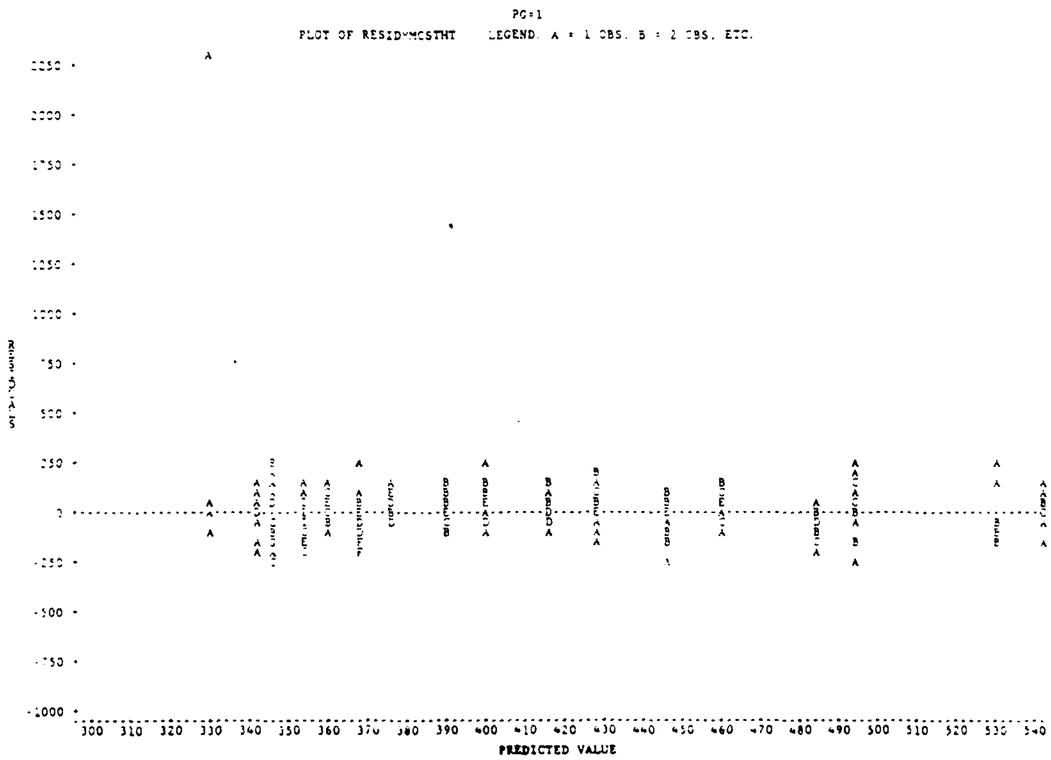


Figure 34. Data Set 540.
Paygrade '1'.
Residuals vs. Predicted Values.

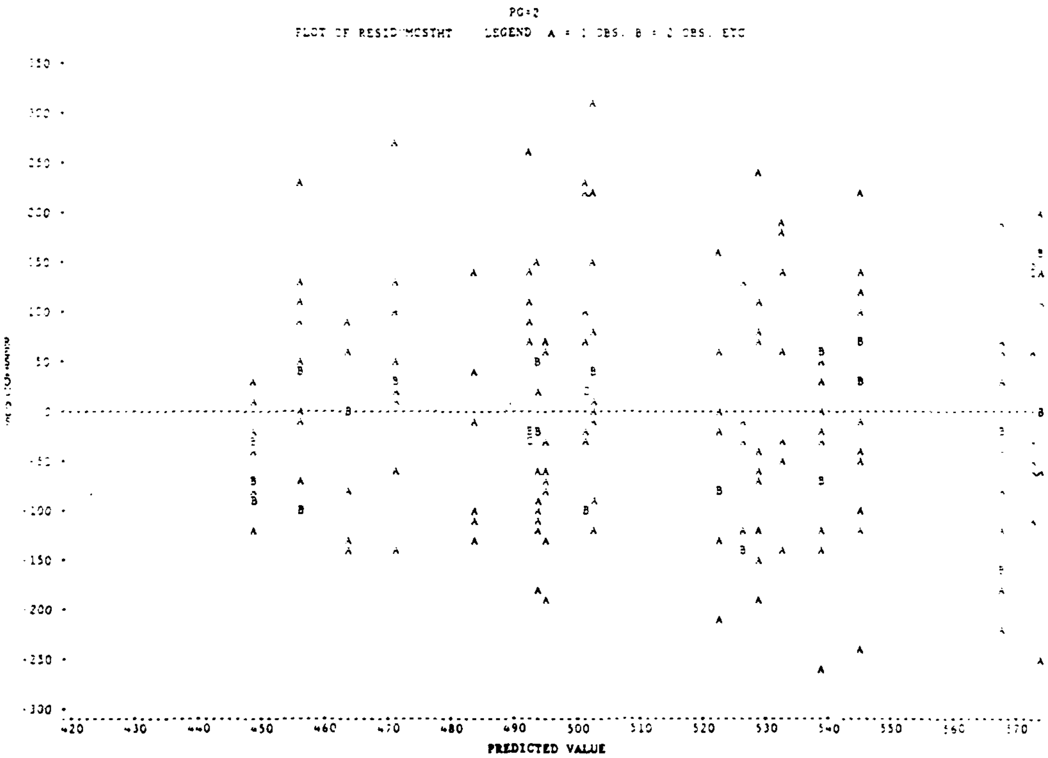


Figure 35. Data Set 540.
Paygrade '2'.
Residuals vs. Predicted Values.

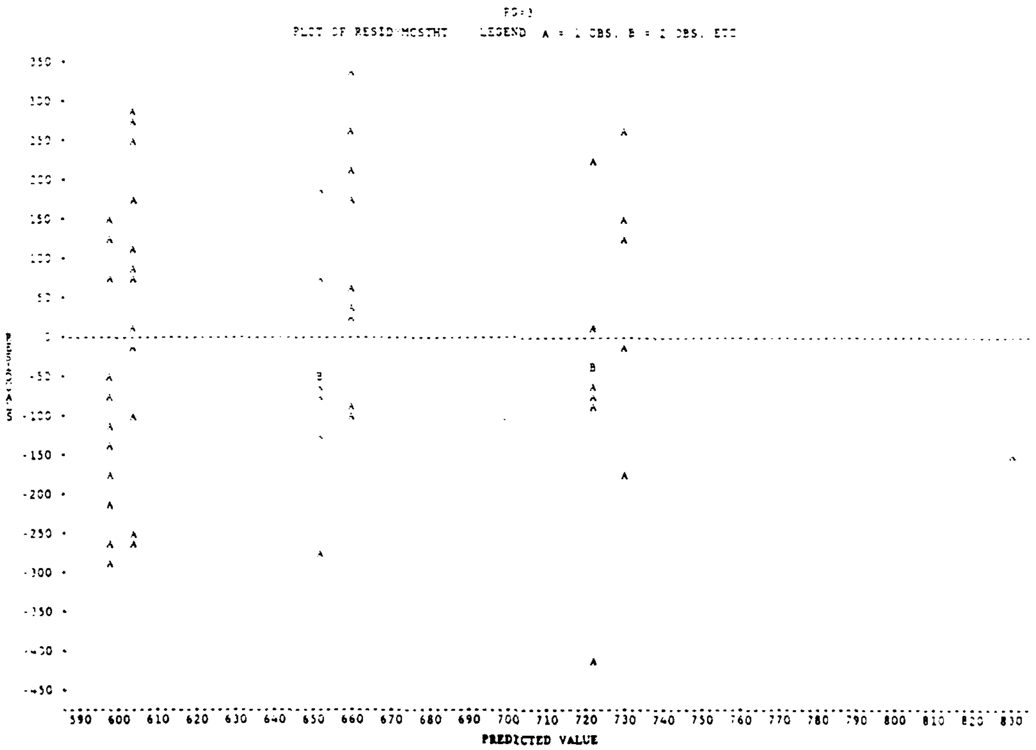


Figure 36. Data Set 540.
Paygrade '3'.
Residuals vs. Predicted Values.

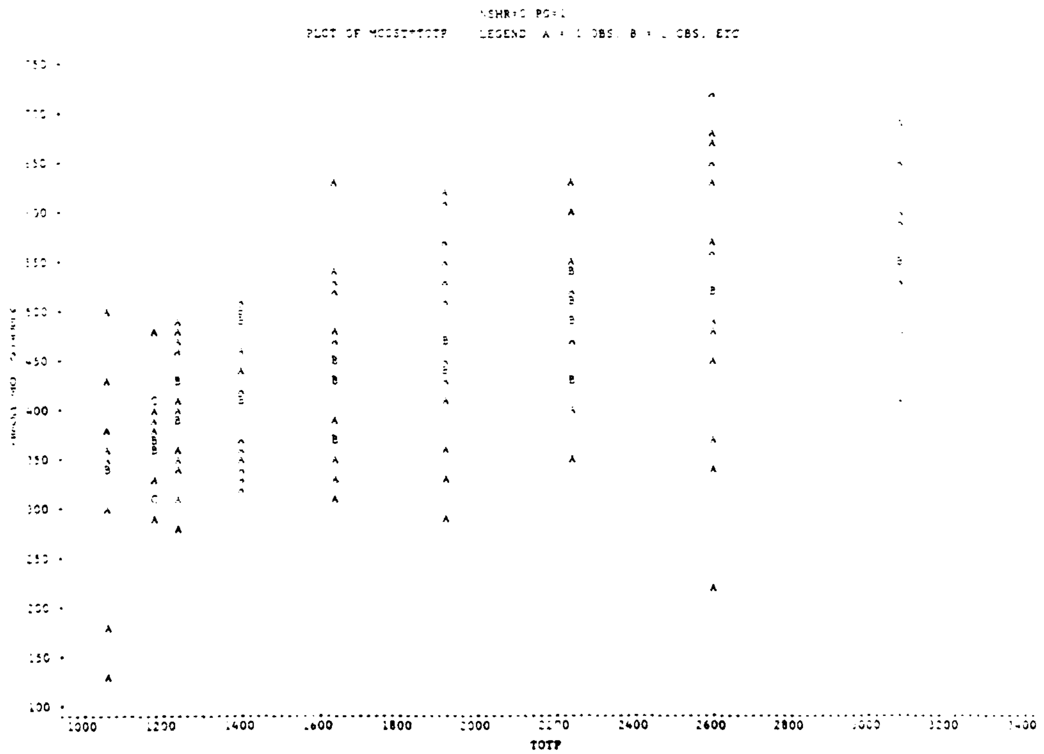


Figure 37. Data Set 540.
Dependency Status '0' and Paygrade '1'.
Median Rent vs. Total Pay.

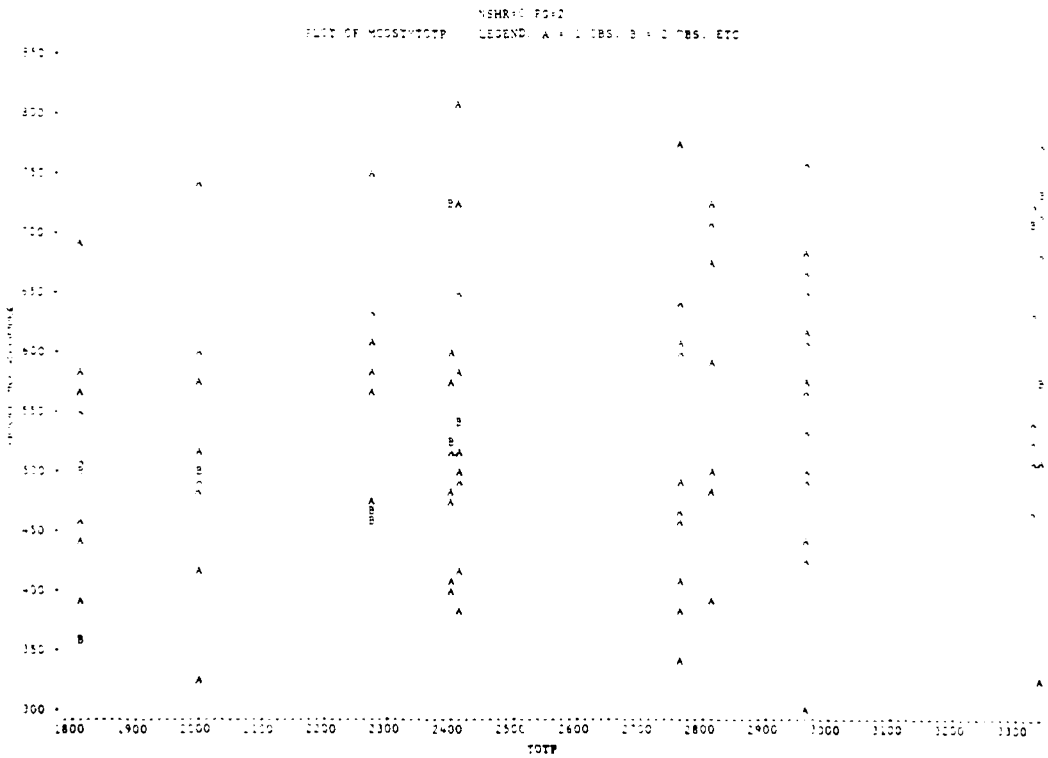


Figure 38. Data Set 540.
Dependency Status '0' and Dependency Status '2'.
Median Rent vs. Total Pay.

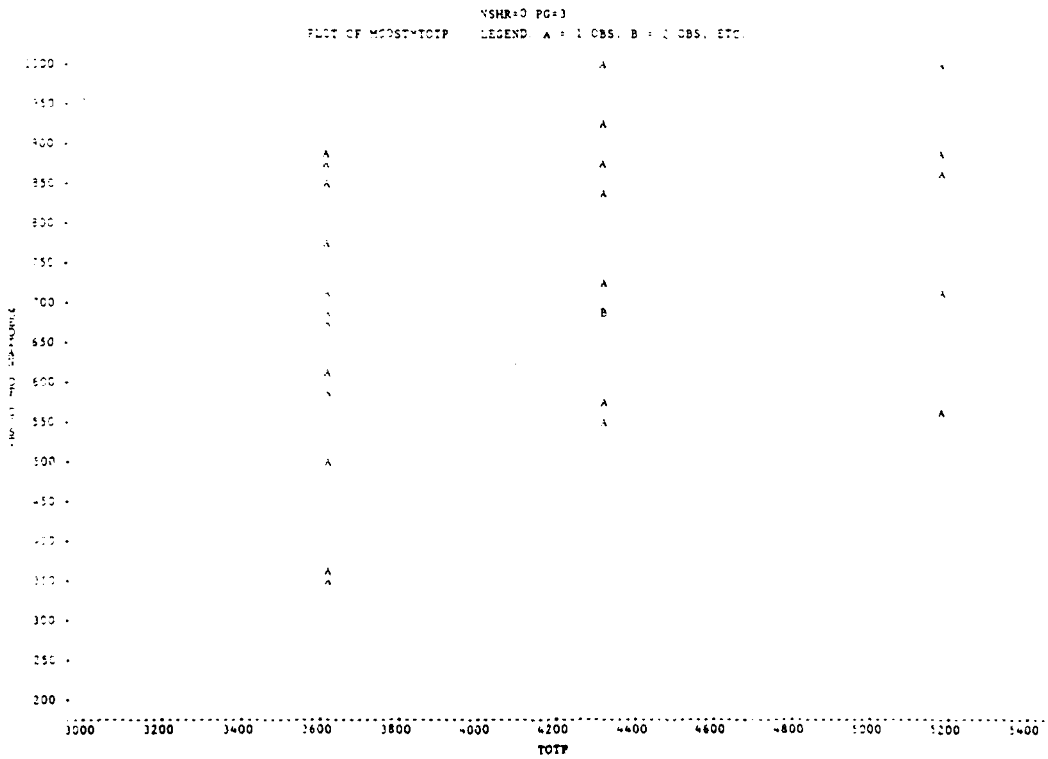


Figure 39. Data Set 540.
Dependency Status '0' and Paygrade '3'.
Median Rent vs. Total Pay.

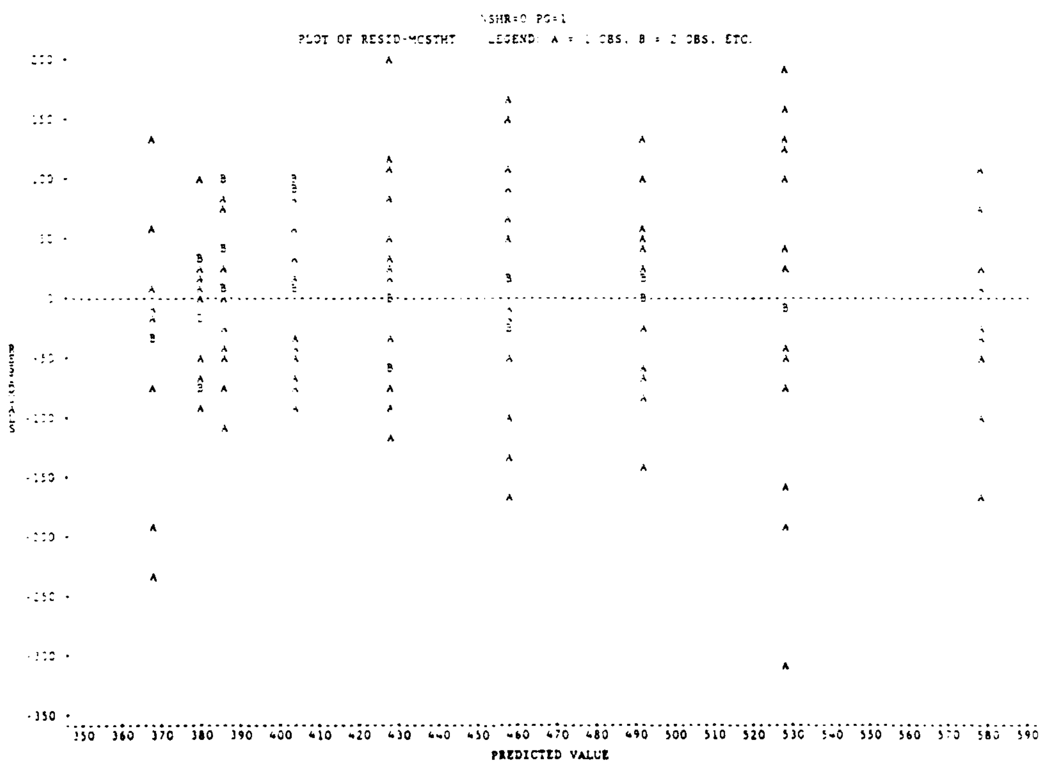


Figure 40. Data Set 540.
Dependency Status '0' and Paygrade '1'.
Residuals vs. Predicted Values.

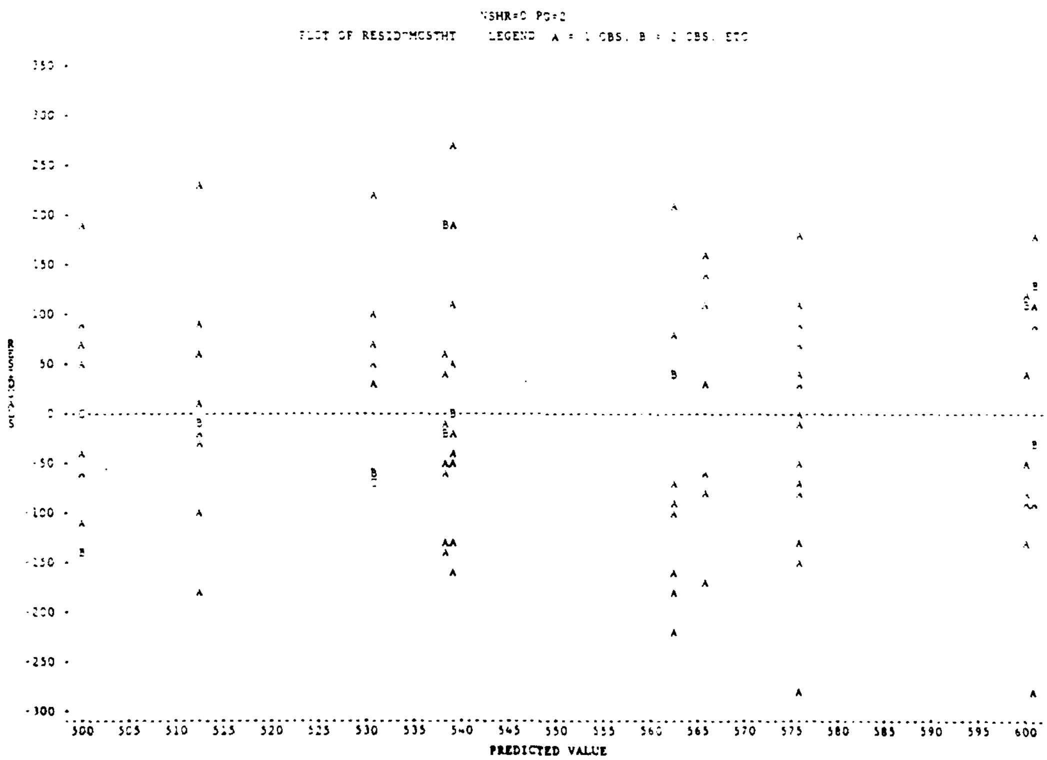


Figure 41. Data Set 540.
Dependency Status'0' and Paygrade '2'.
Residuals vs. Predicted Values.

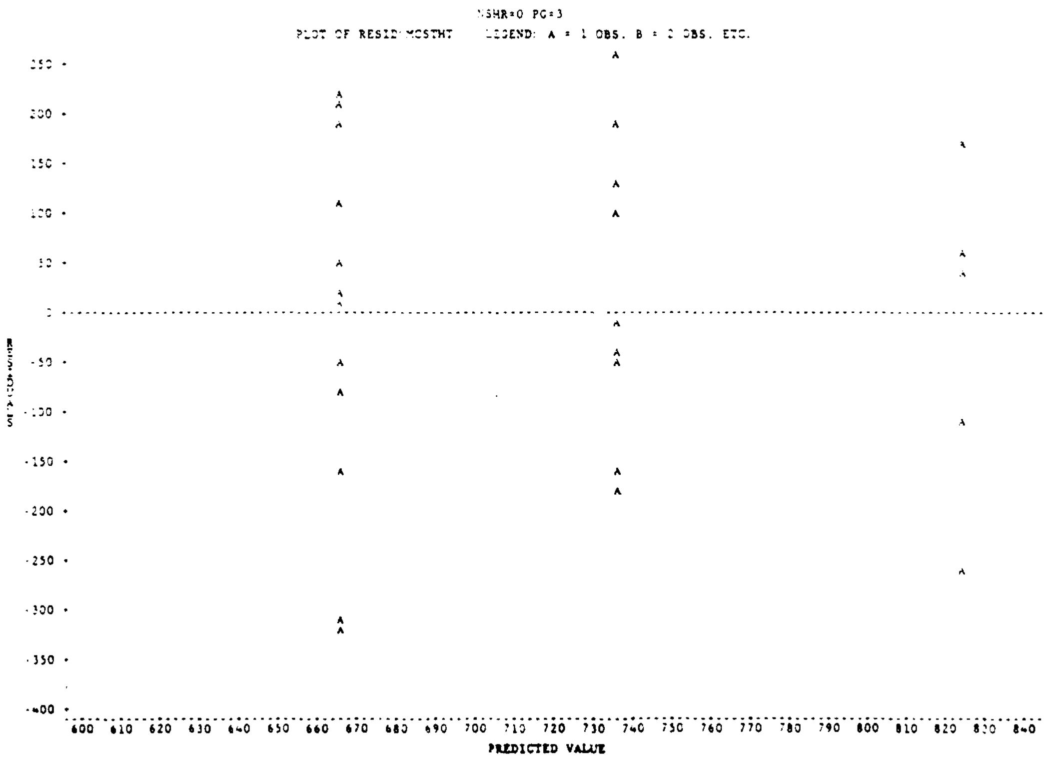


Figure 42. Data Set 540.
Dependency Status '0' and Paygrade '3'.
Residuals vs. Predicted Values.

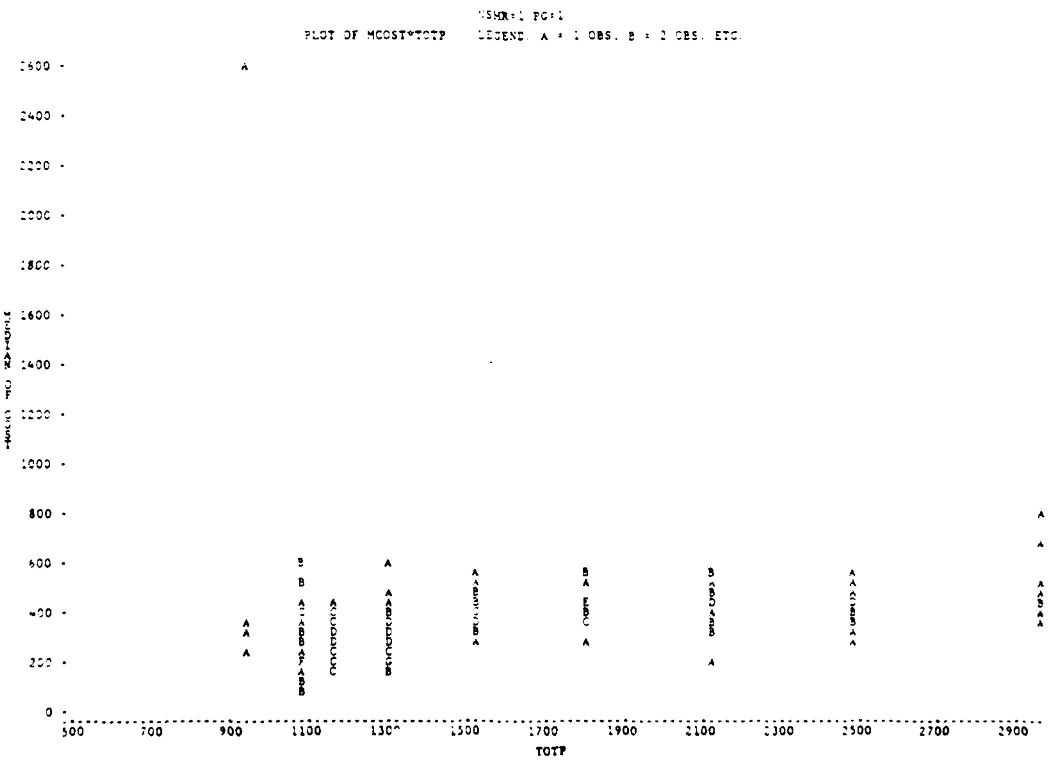


Figure 43. Data Set 540.
Dependency Status '1' and Paygrade '1'.
Median Rent vs. Total Pay.

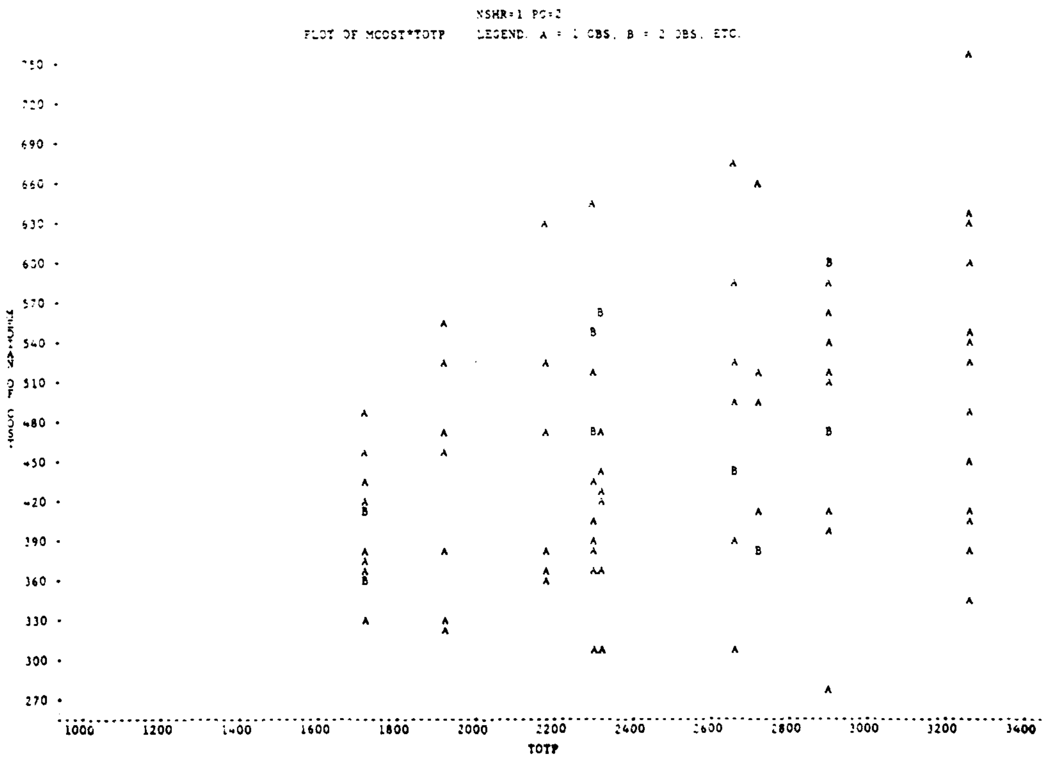


Figure 44. Data Set 540.
Dependency Status '1' and Paygrade '2'.
Median Rent vs. Total Pay.

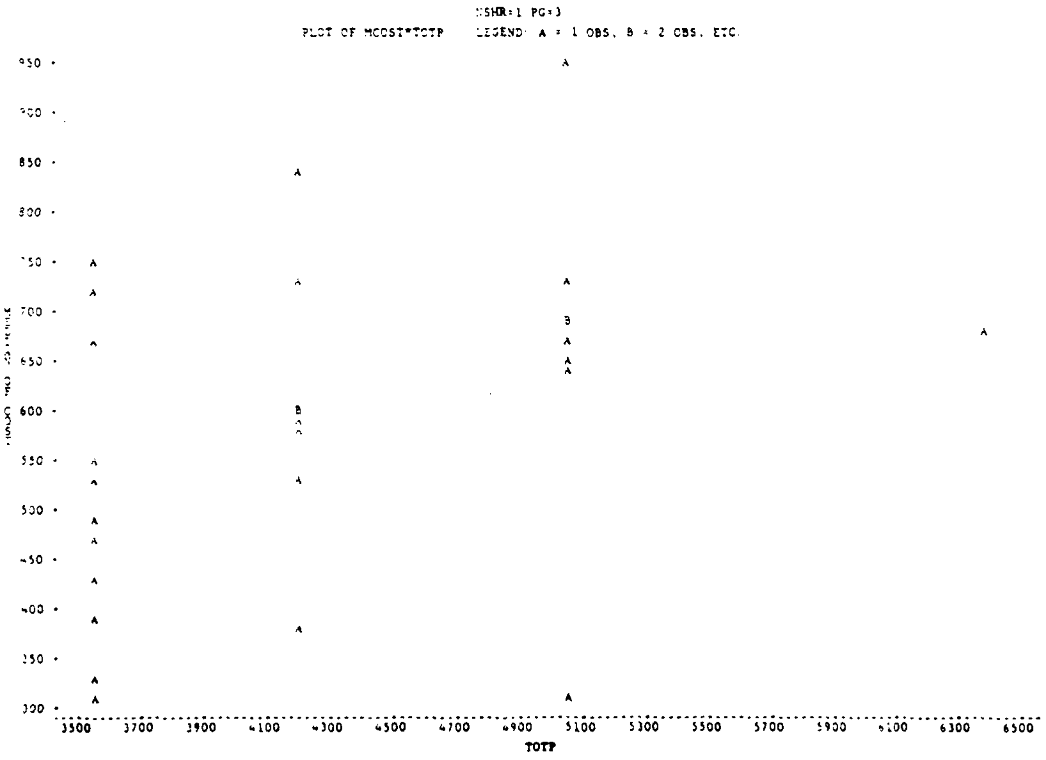


Figure 45. Data Set 540.
Dependency Status '1' and Paygrade '3'.
Median Rent vs. Total Pay.

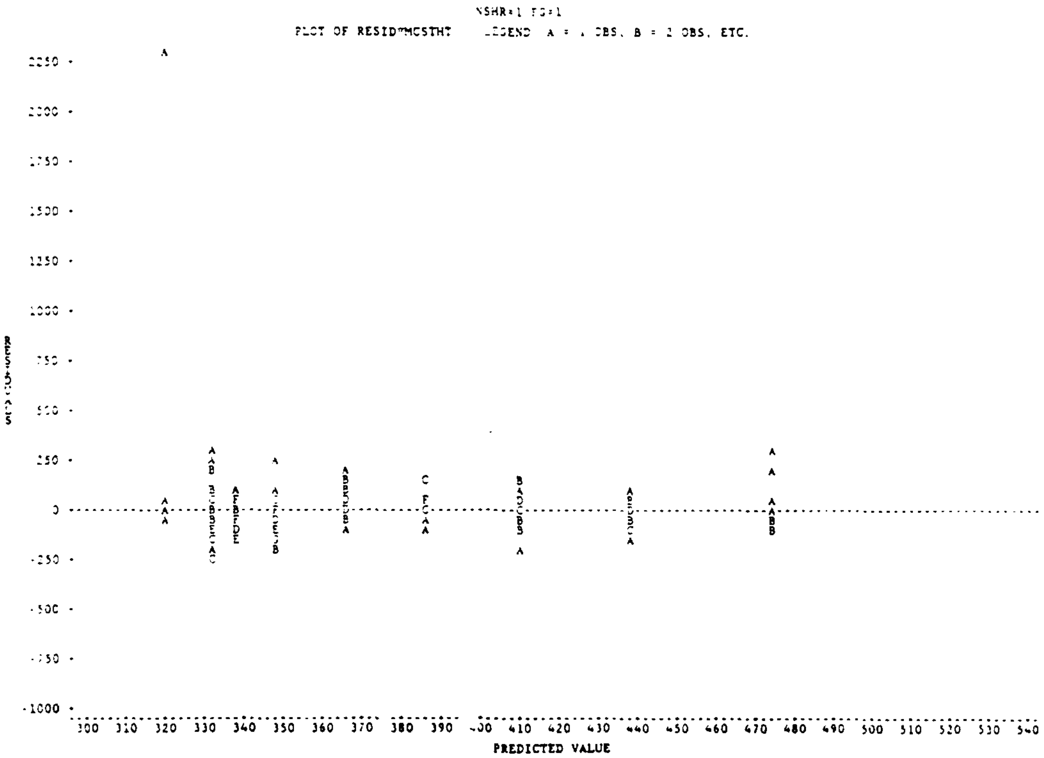


Figure 46. Data Set 540.
Dependency Status '1' and Paygrade '1'.
Residuals vs. Predicted Values.

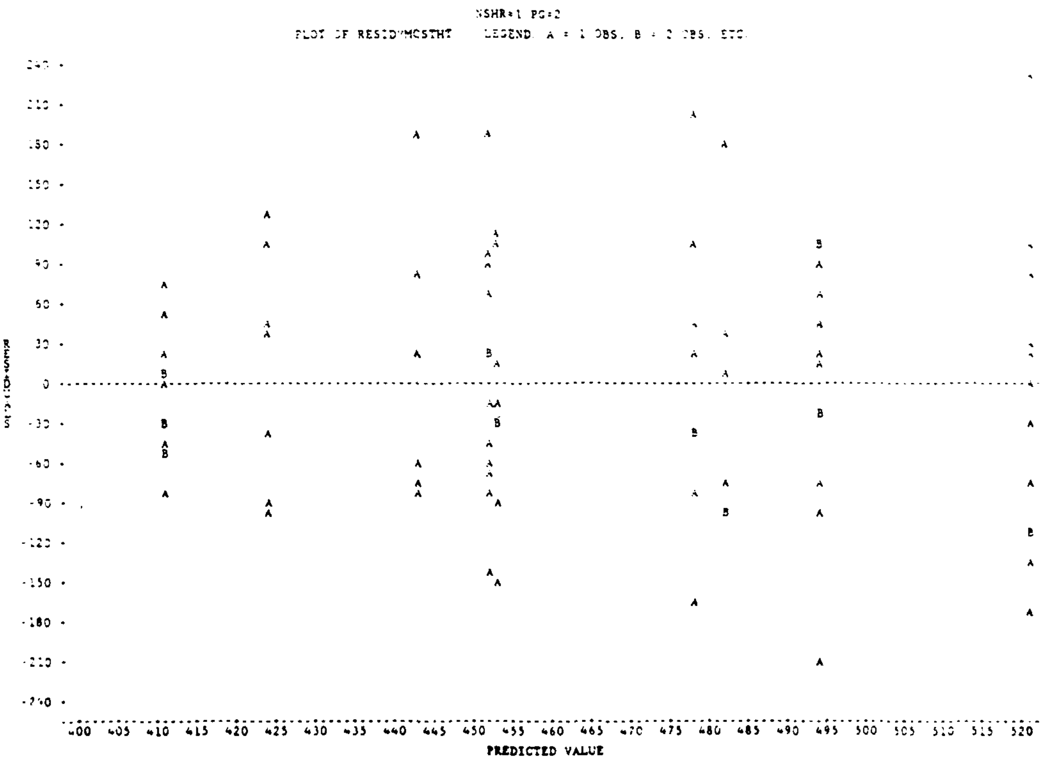


Figure 47. Data Set 540.
Dependency Status '1' and Paygrade '2'.
Residuals vs. Predicted Values.

Figure 48. Data Set 540.
Dependency Status '1' and Paygrade '3'.
Residuals vs. Predicted Values.

C. USING DATA SET 540 AS AN EXAMPLE, SCATTER PLOTS AND RESIDUAL PLOTS FOR THE WEIGHTED LEAST SQUARES MODEL.

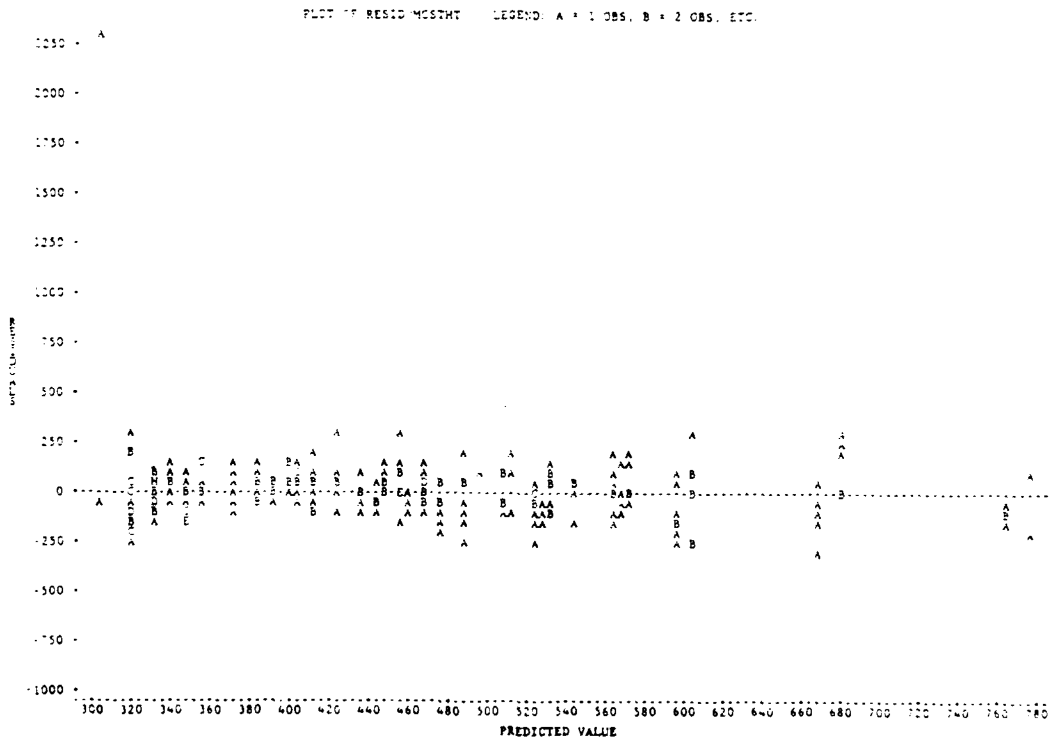


Figure 49. Data Set 540. Residuals vs. Predicted Values.

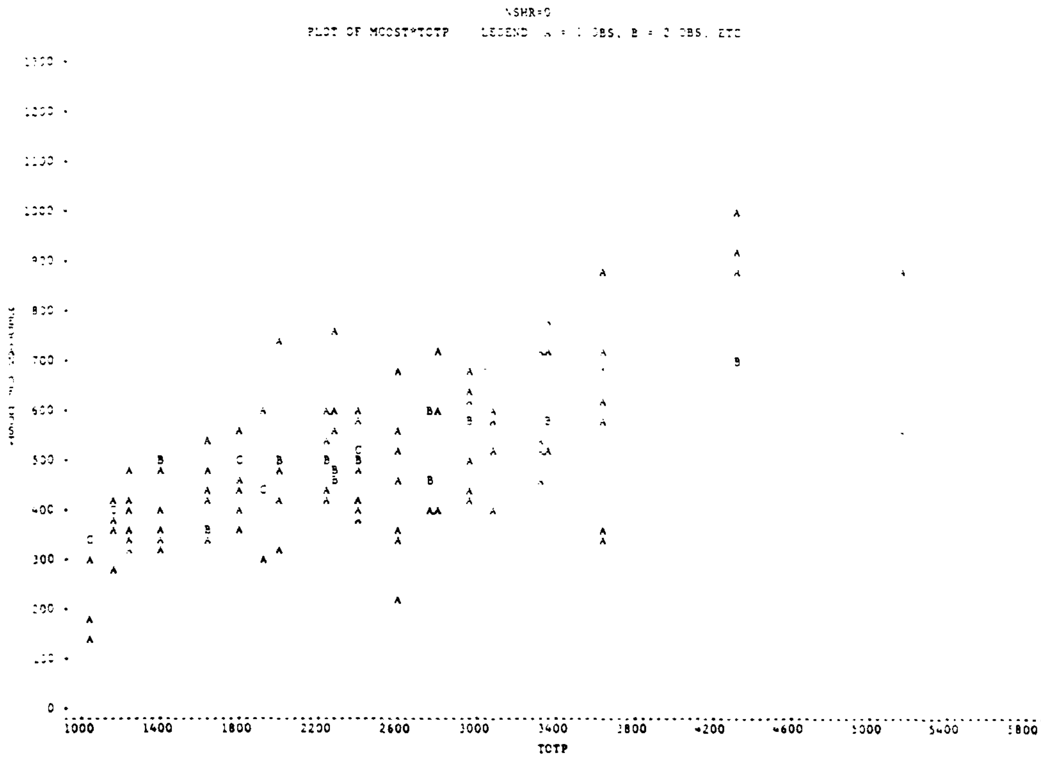


Figure 50. Data Set 540.
Dependency Status '0'.
Median Rent vs. Total Pay.

Figure 51. Data Set 540.
Dependency Status '1'.
Median Rent vs. Total Pay.

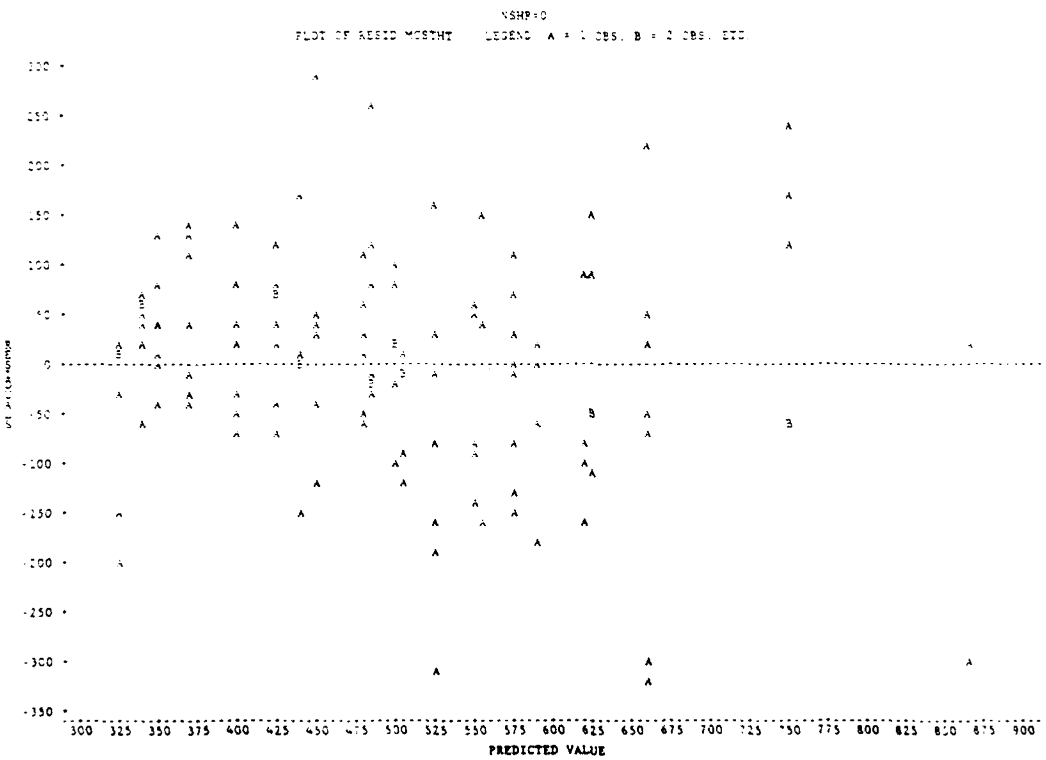


Figure 52. Data Set 540.
Dependency Status '0'.
Residuals vs. Predicted Values.

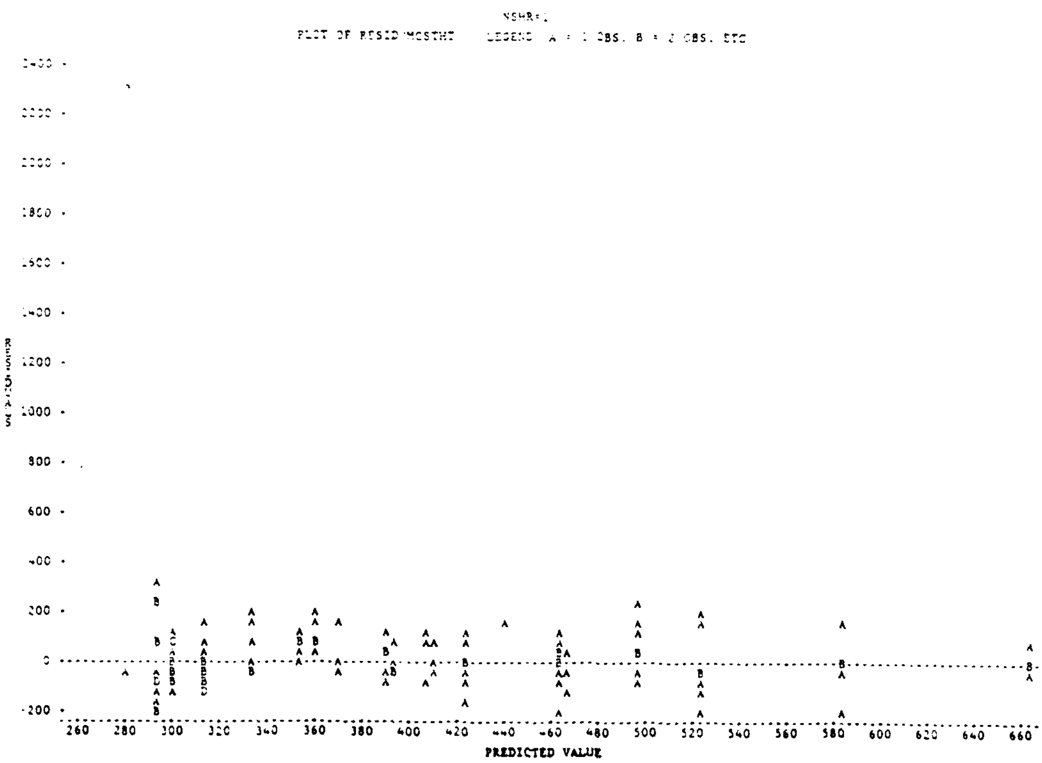


Figure 53. Data Set 540.
Dependency Status '1'.
Residuals vs. Predicted Values.

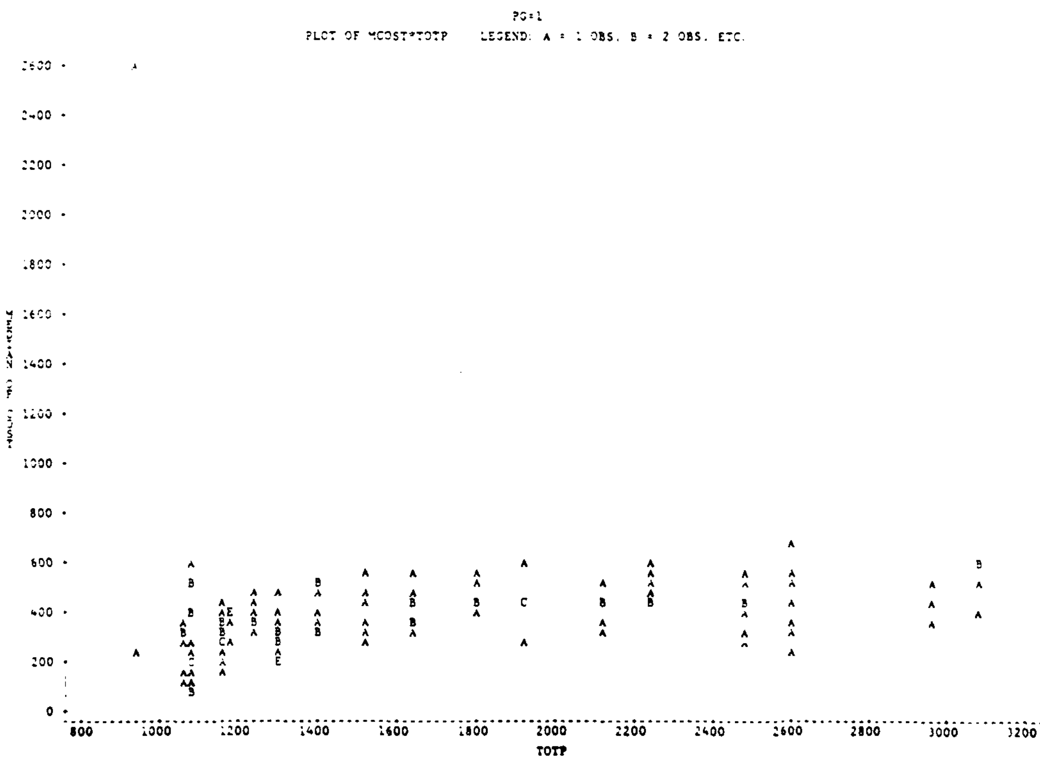


Figure 54. Data Set 540.
Paygrade '1'.
Median Rent vs. Total Pay.

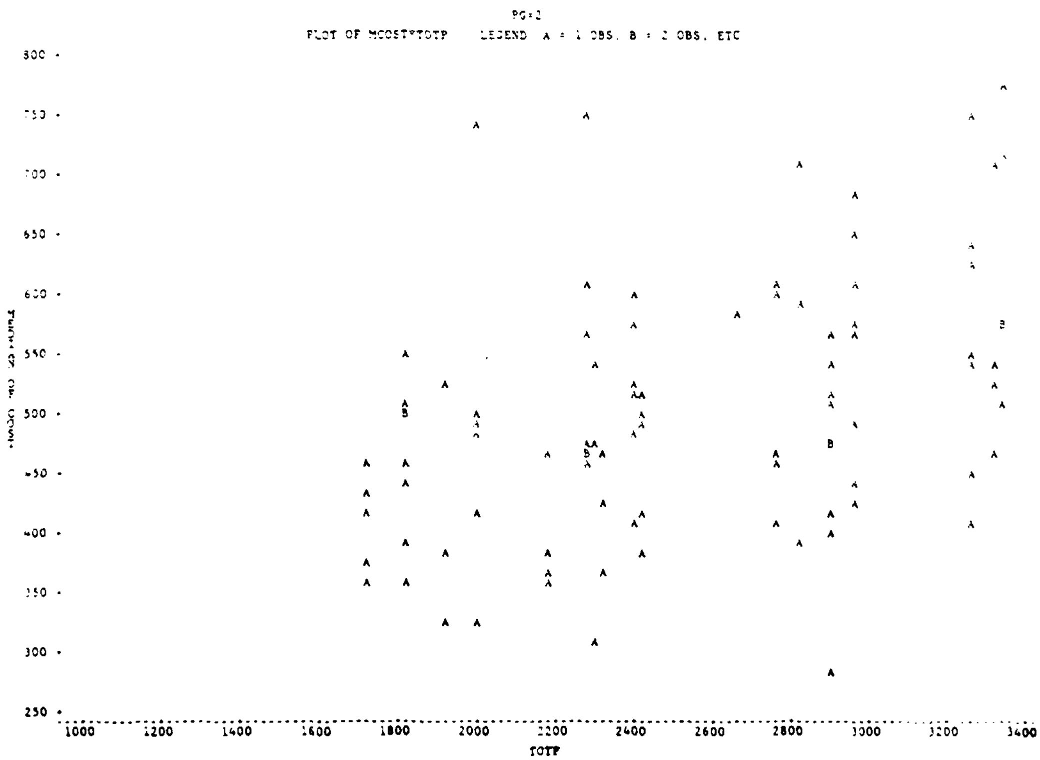


Figure 55. Data Set 540.
Paygrade '2'.
Median Rent vs. Total Pay.

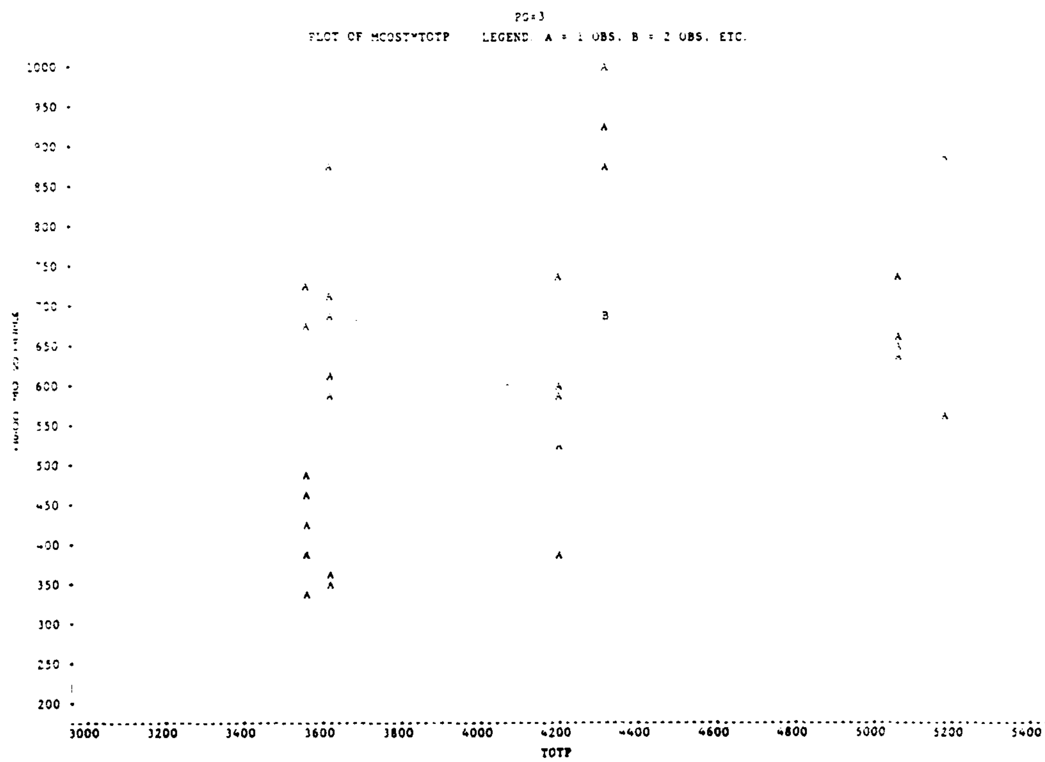


Figure 56. Data Set 540.
Paygrade '3'.
Median Rent vs. Total Pay.

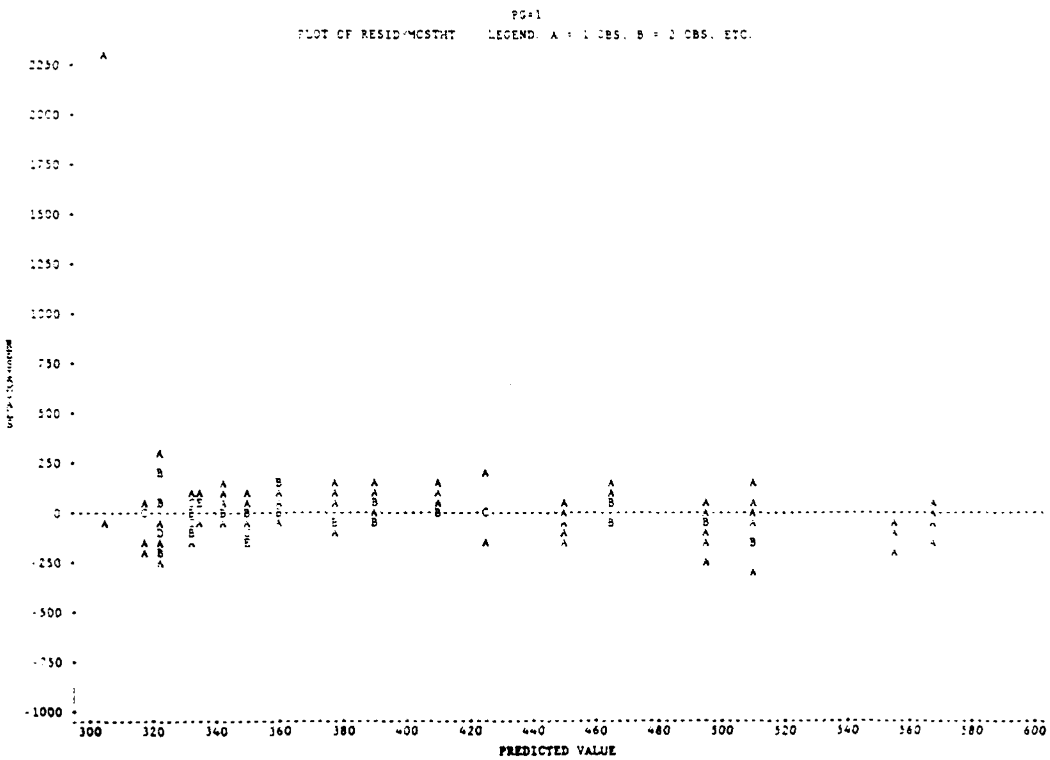


Figure 57. Data Set 540.
Paygrade '1'.
Residuals vs. Predicted Values.

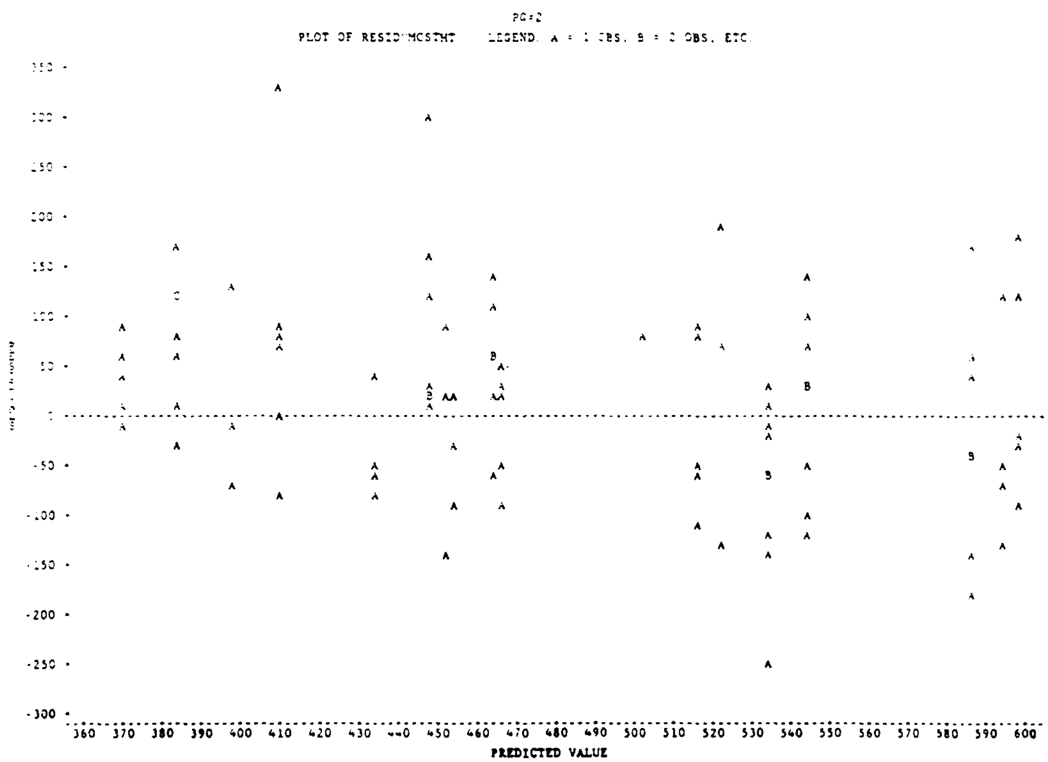


Figure 58. Data Set 540.
Paygrade '2'.
Residuals vs. Predicted Values.

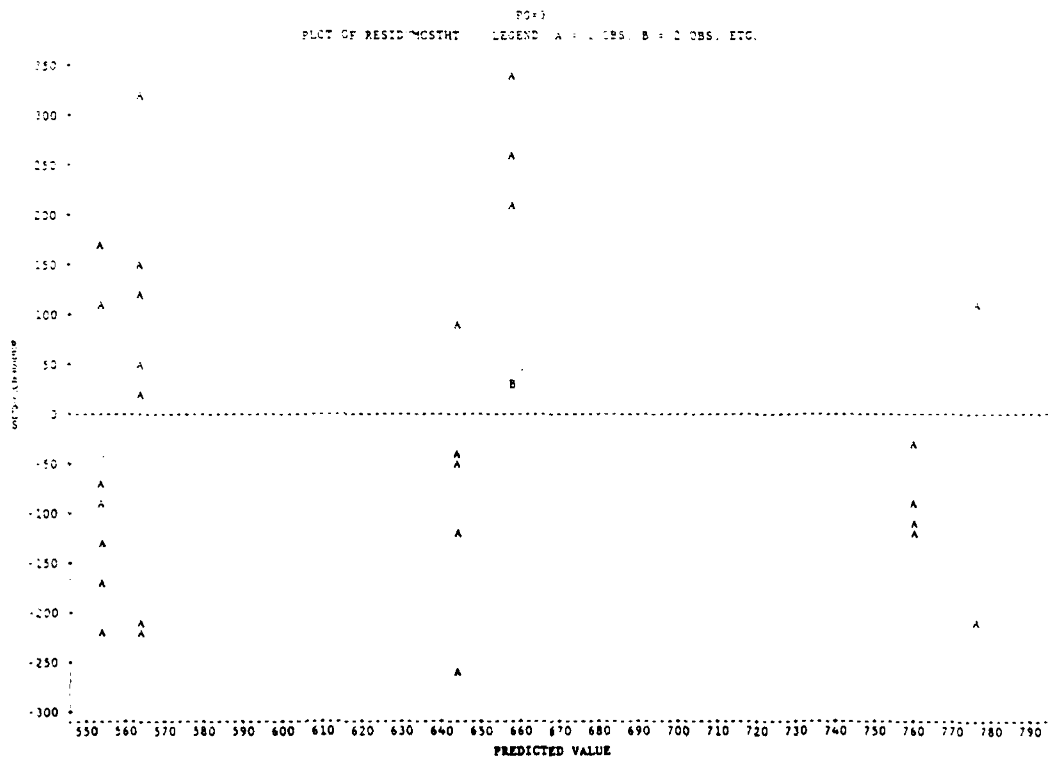


Figure 59. Data Set 540.
Paygrade '3'.
Residuals vs. Predicted Values.

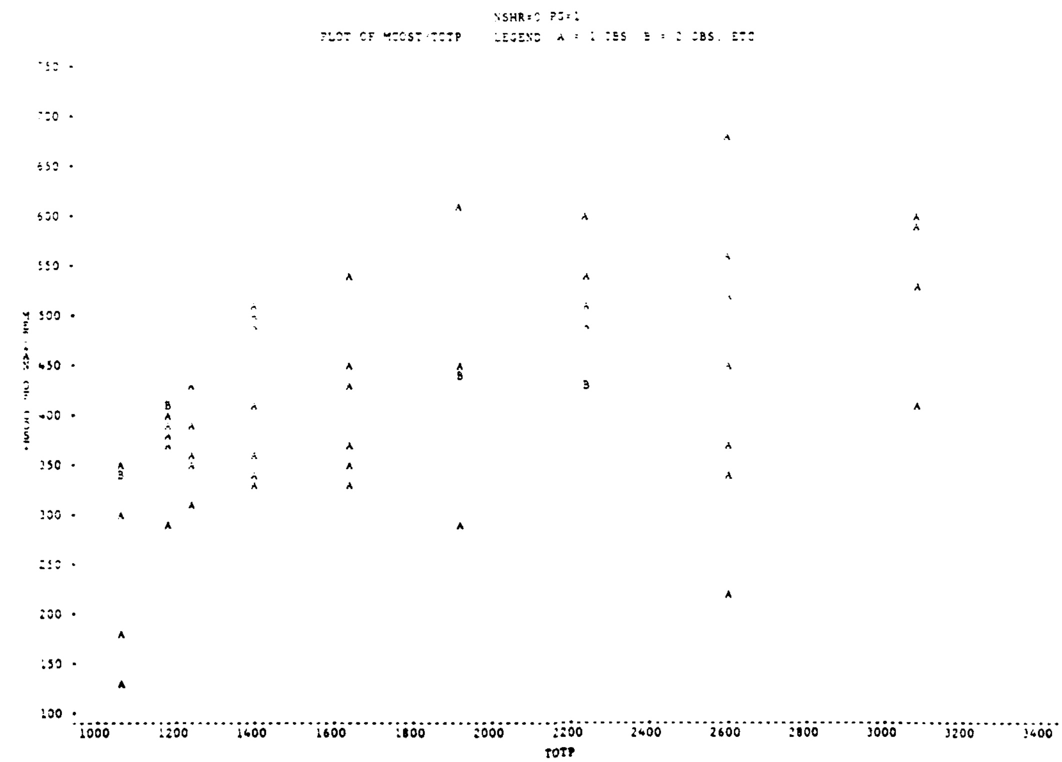


Figure 60. Data Set 540.
Dependency Status '0' and Paygrade '1'.
Median Rent vs. Total Pay.

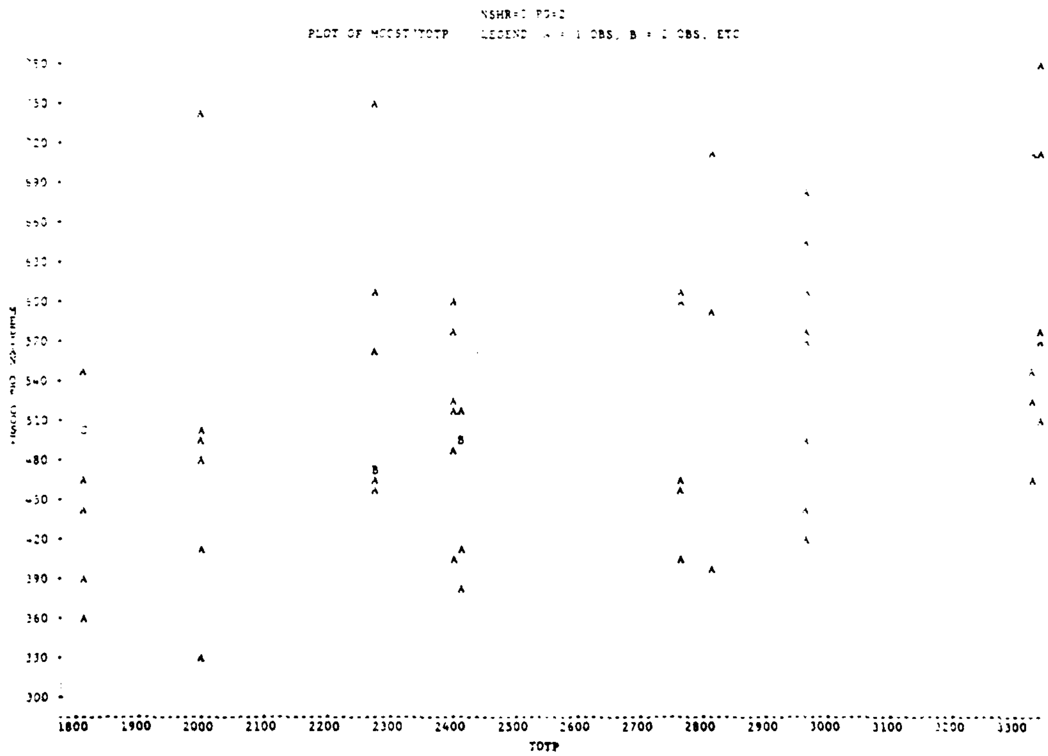


Figure 61. Data Set 540.
Dependency Status '0' and Dependency Status '2'.
Median Rent vs. Total Pay.

Figure 62. Data Set 540.
Dependency Status '0' and Paygrade '3'.
Median Rent vs. Total Pay.

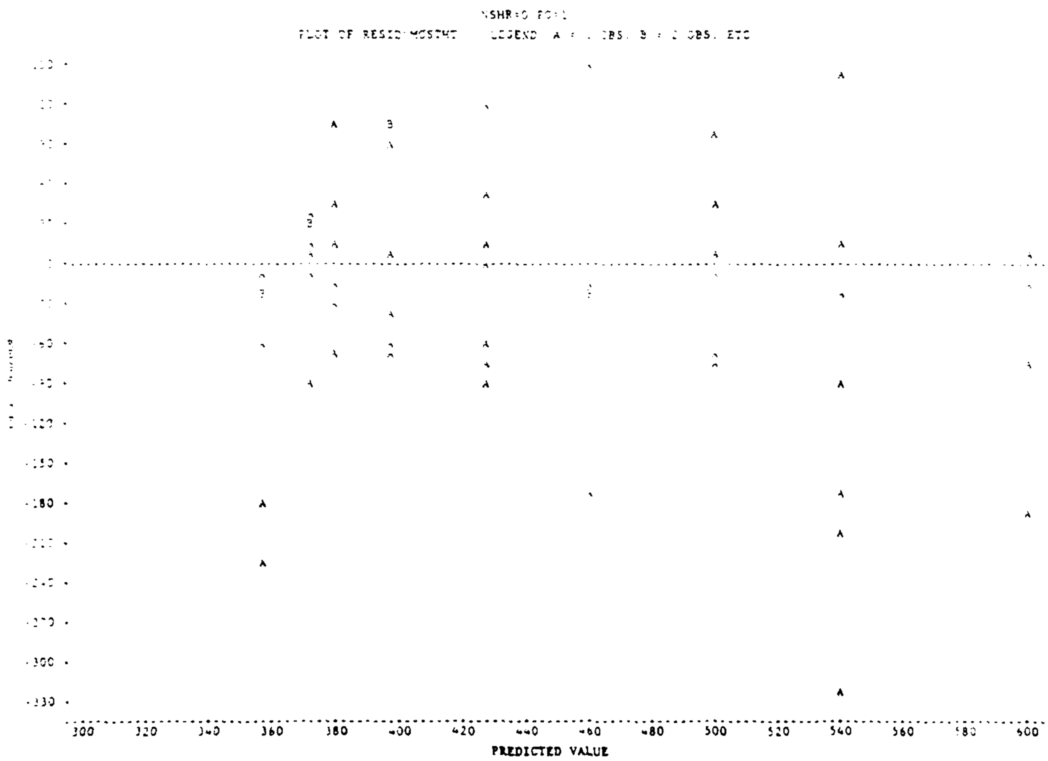


Figure 63. Data Set 540.
Dependency Status '0' and Paygrade '1'.
Residuals vs. Predicted Values.

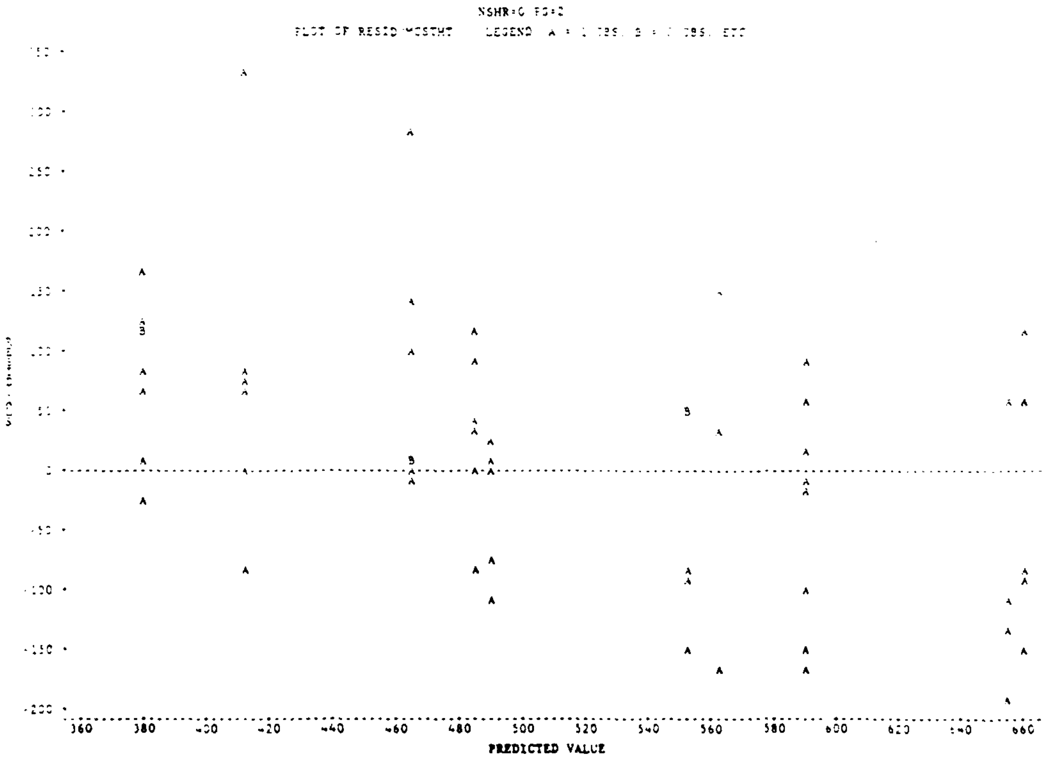


Figure 64. Data Set 540.
Dependency Status '0' and Paygrade '2'.
Residuals vs. Predicted Values.

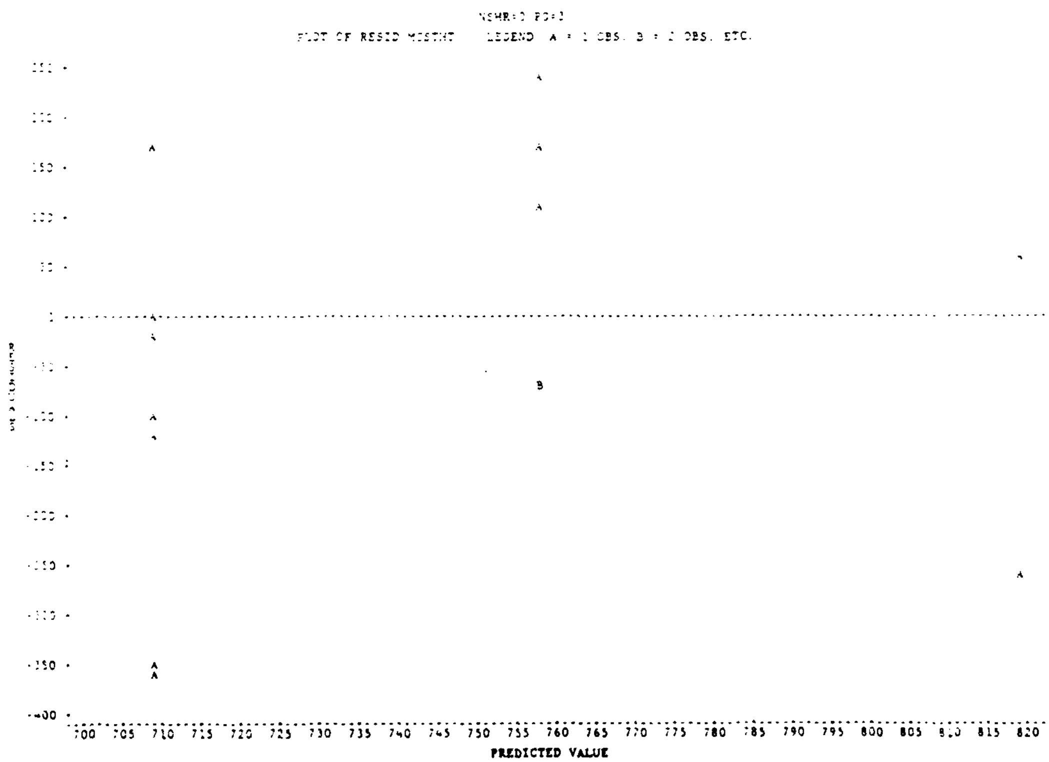


Figure 65. Data Set 540.
Dependency Status '0' and Paygrade '3'.
Residuals vs. Predicted Values.

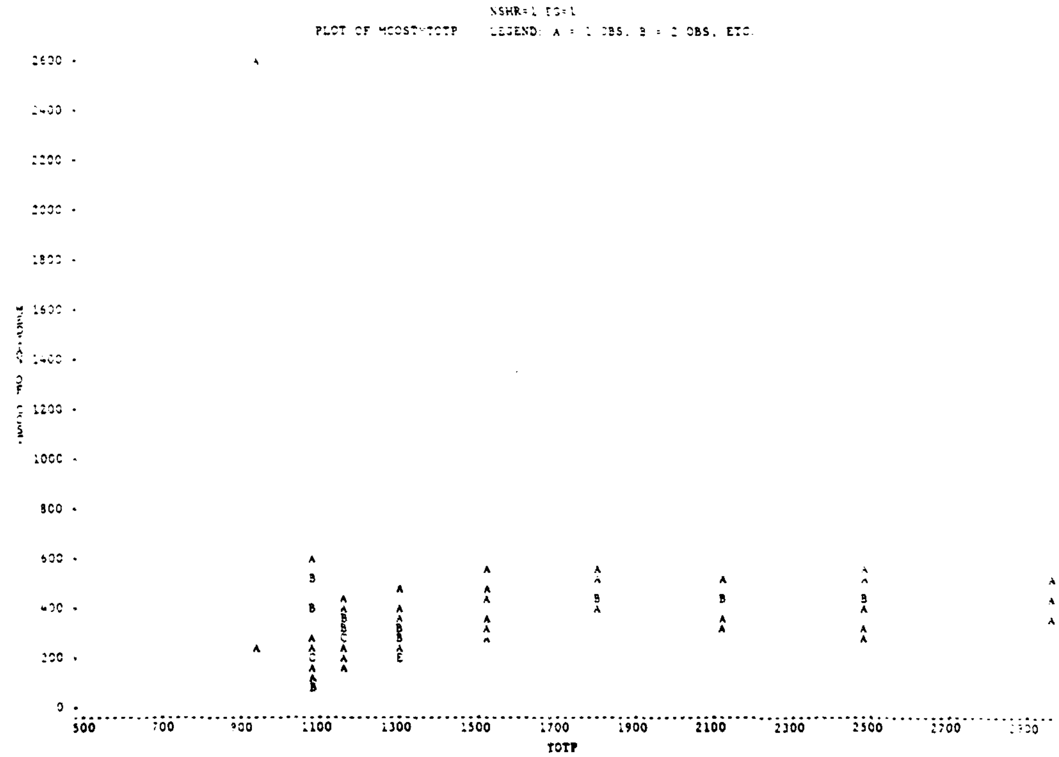


Figure 66. Data Set 540.
Dependency Status '1' and Paygrade '1'.
Median Rent vs. Total Pay.

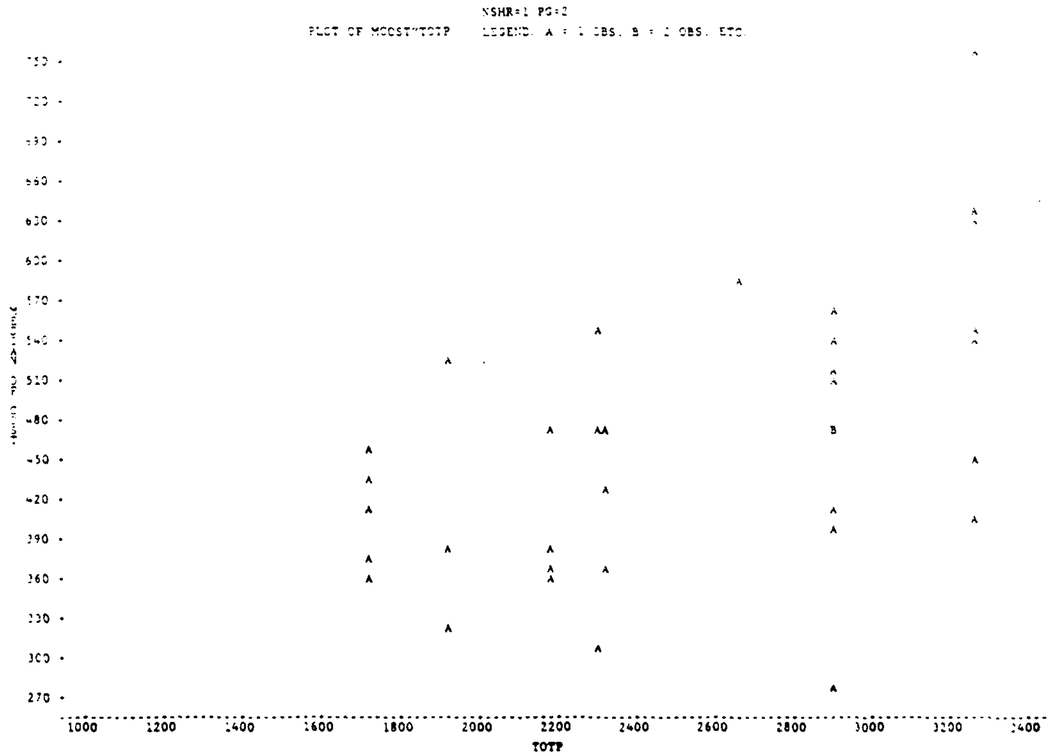


Figure 67. Data Set 540.
Dependency Status '1' and Paygrade '2'.
Median Rent vs. Total Pay.

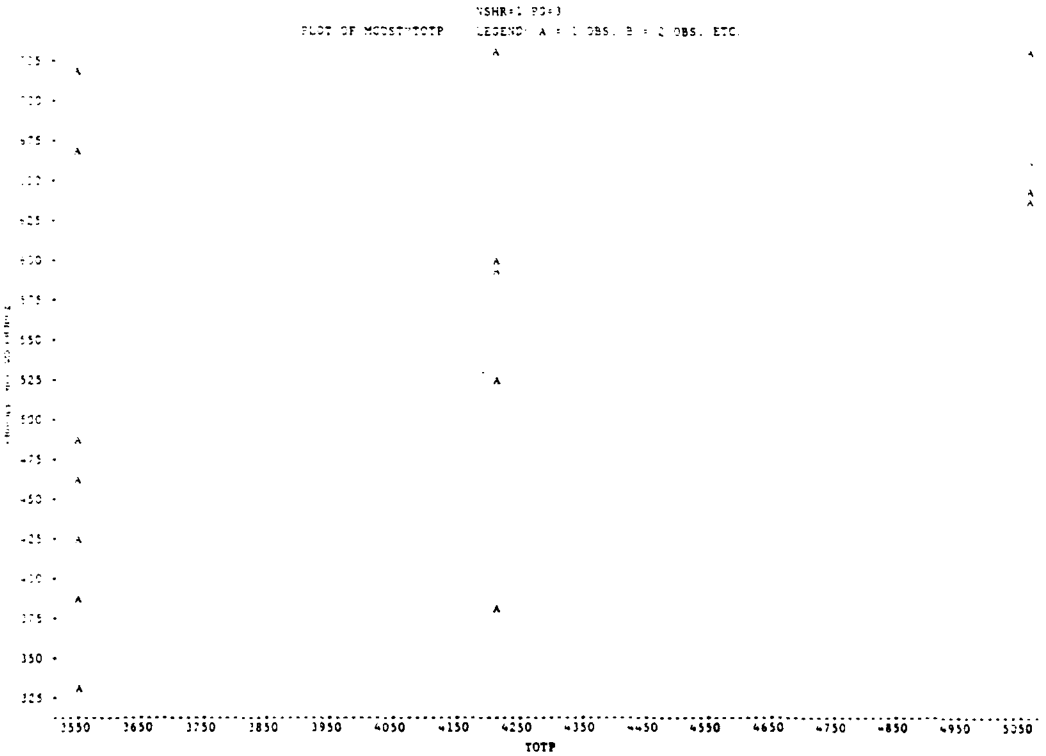


**Figure 68. Data Set 540.
Dependency Status '1' and Paygrade '3'.
Median Rent vs. Total Pay.**

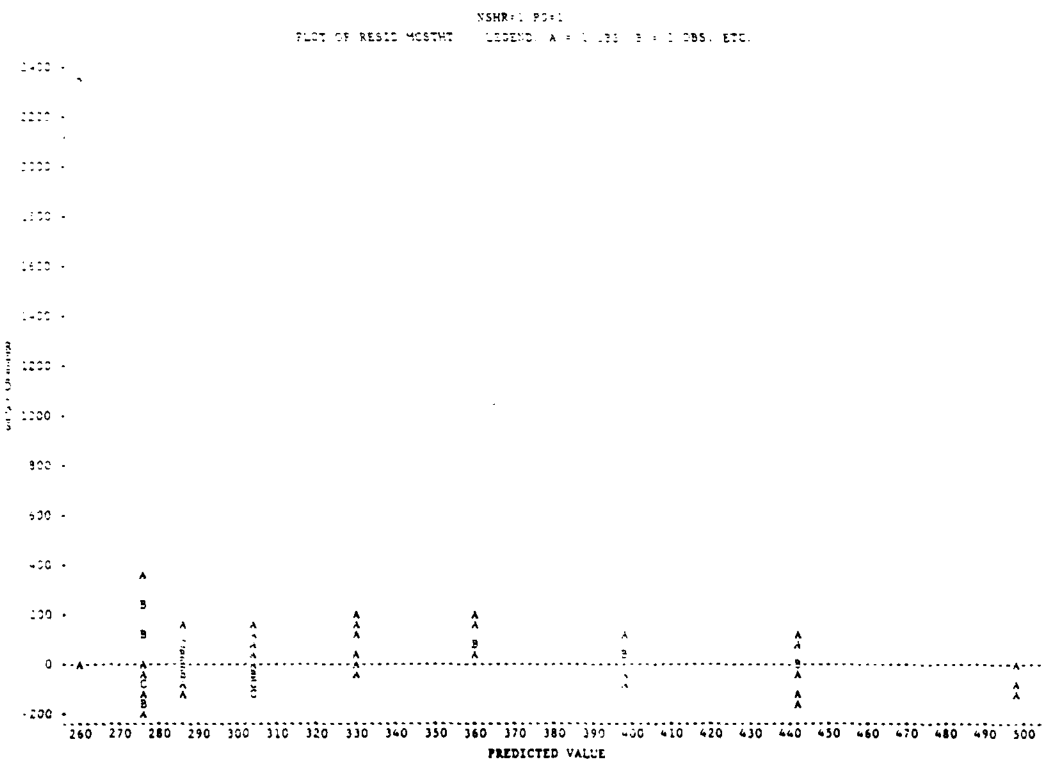


Figure 69. Data Set 540.
Dependency Status '1' and Paygrade '1'.
Residuals vs. Predicted Values.

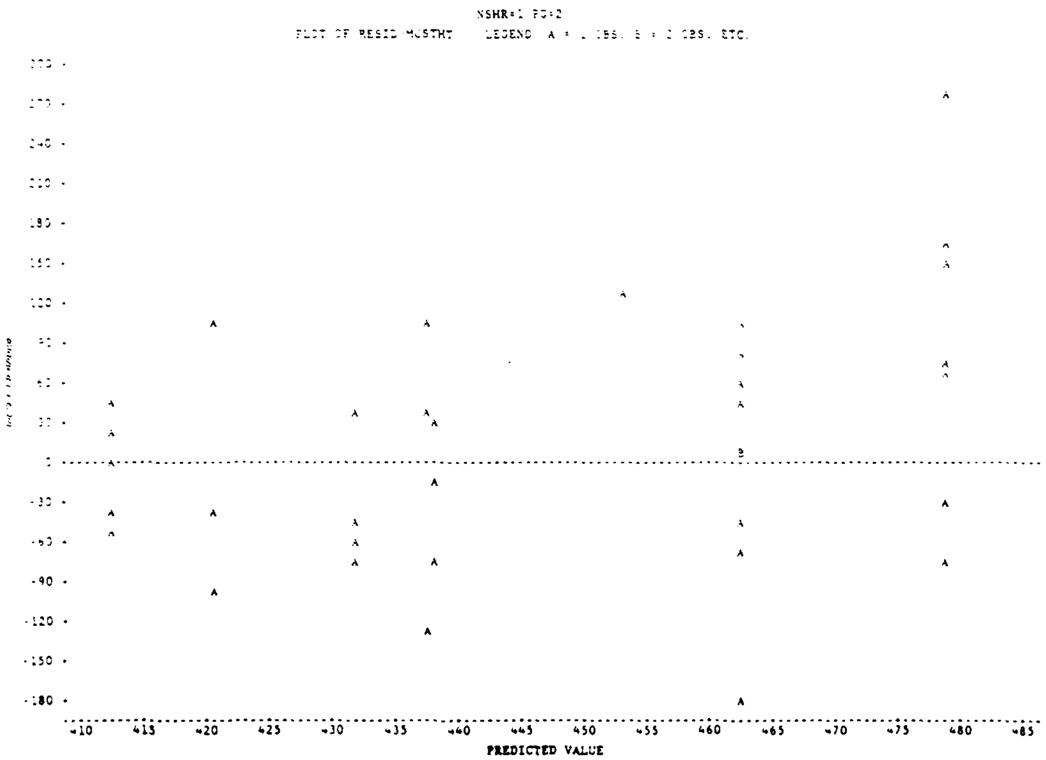


Figure 70. Data Set 540.
Dependency Status '1' and Paygrade '2'.
Residuals vs. Predicted Values.

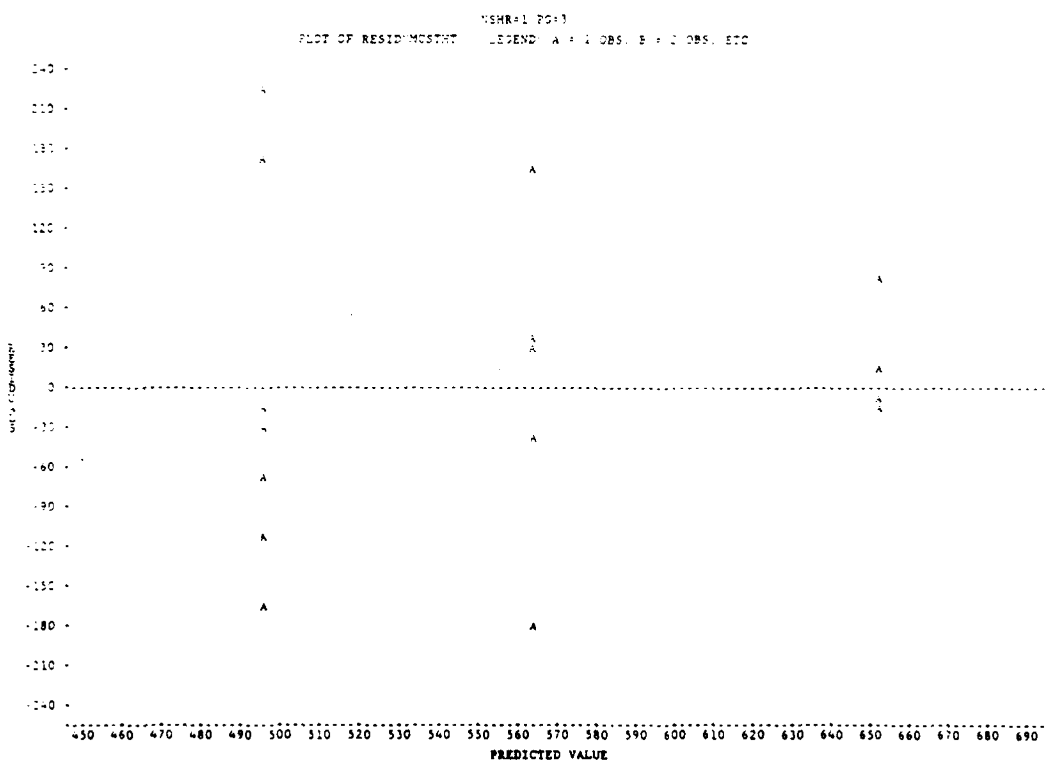


Figure 71. Data Set 540.
Dependency Status '1' and Paygrade '3'.
Residuals vs. Predicted Values.

D. USING DATA SET 540 AS AN EXAMPLE, STEM AND LEAF, NORMAL PLOTS, AND RESIDUAL PLOTS FOR THE ANCOVA MODEL.

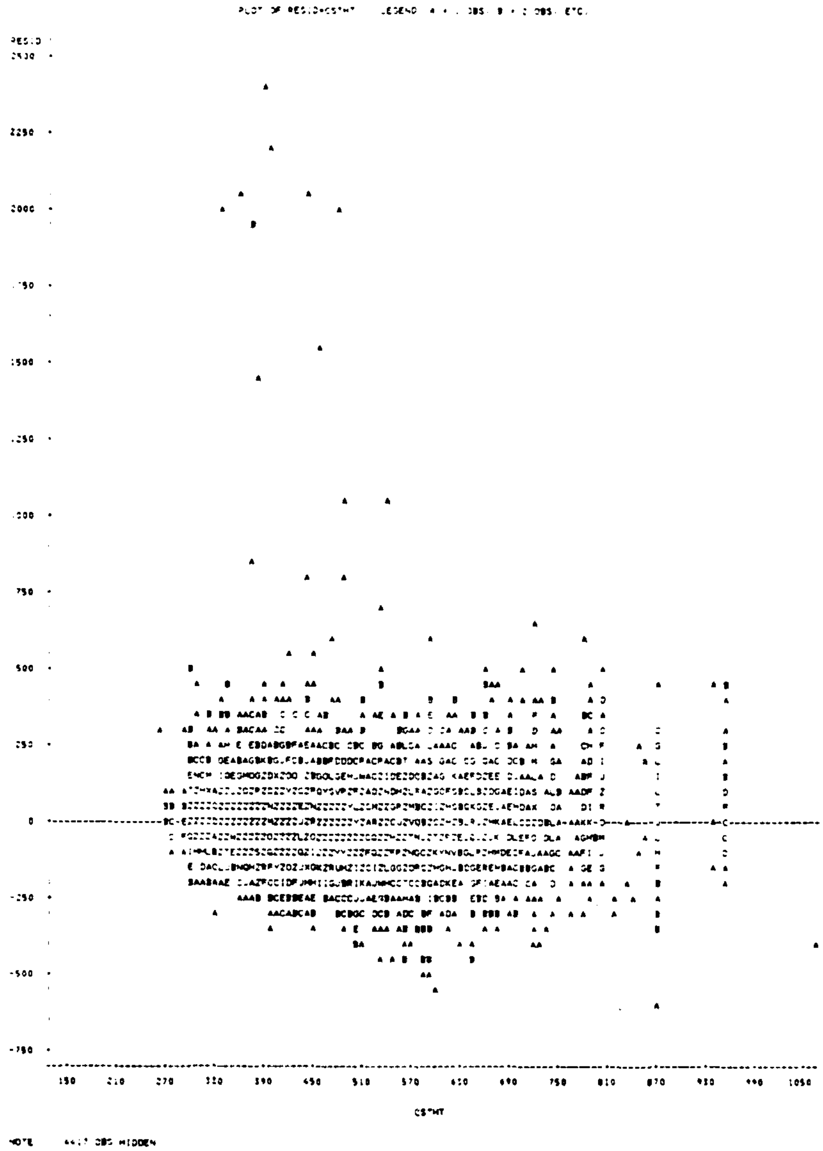
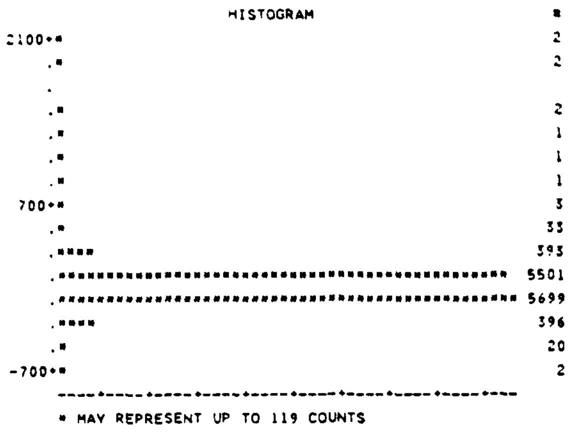


Figure 72. Data Set 540. Residuals vs. Predicted Values.



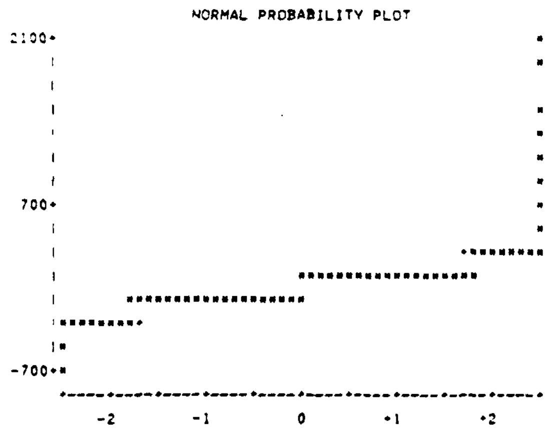


Figure 73. Data Set 540. Stem and Leaf and Normal Plots.

APPENDIX B. SAS PROGRAM EXAMPLE

```
//EXT4 JOB (1668,9999),'WILLIAMS',CLASS=G
//*MAIN SYSTEM=SY2,LINES=(99),CARDS=(500)
// EXEC SAS
//WORK    DD SPACE=(CYL,(20,2))
//DATAIN DD DISP=SHR,DSN=MW4W.DPDVHA.EDITSR.CCG45.M540
//DATAOUT DD DISP=(OLD,KEEP),DSN=MSS.S1668.EXT
//SYSIN DD *
DATA DATA540;
INFILE DATAIN;
INPUT PG 18-19 NSHR 20-21 HT 22-23 BR 24-25 RO 26-27 COST 30-33
E1 34 E2 35;
BW1=269;
BW2=269;
BW3=282;
BW4=304;
BW5=349;
BW6=388;
BW7=420;
BW8=452;
BW9=491;
BW10=373;
BW11=431;
BW12=469;
BW13=511;
BW14=428;
BW15=463;
BW16=513;
BW17=365;
BW18=408;
BW19=478;
BW20=578;
BW21=655;
BW22=680;
BW23=755;
BWO1=150;
BWO2=169;
BWO3=208;
BWO4=212;
BWO5=244;
BWO6=264;
BWO7=292;
BWO8=342;
BWO9=372;
BWO10=283;
BWO11=338;
BWO12=381;
BWO13=453;
BWO14=318;
BWO15=370;
BWO16=434;
BWO17=269;
BWO18=319;
BWO19=402;
BWO20=502;
BWO21=542;
BWO22=562;
BWO23=613;
TP1=1054;
TP2=1178;
TP3=1238;
TP4=1396;
TP5=1631;
TP6=1914;
TP7=2238;
TP8=2590;
TP9=3072;
TP10=2003;
TP11=2412;
TP12=2811;
TP13=3321;
TP14=2281;
TP15=2759;
```

```
TP16=3343;
TP17=1815;
TP18=2394;
TP19=2966;
TP20=3628;
TP21=4321;
TP22=5179;
TP23=6517;
IF E1 EQ 2 OR E2 EQ 2 THEN DELETE;
IF E1 EQ 7 OR E2 EQ 7 THEN DELETE;
IF E1 GE 8 OR E2 GE 8 THEN DELETE;
IF NSHR GT 2 THEN DELETE;
IF NSHR EQ 2 AND PG GT 4 THEN DELETE;
IF RO EQ 2 THEN DELETE;
IF COST LT 1 THEN COST = 1;
ICOST=1/COST;
DATA DATA540;
     SET DATA540;
     ARRAY BW(23) BW1-BW23;
     ARRAY BWO(23) BWO1-BWO23;
     ARRAY TP(23) TP1-TP23;
     DO I = 1 TO 23;
        IF PG EQ I AND NSHR EQ 0 THEN DO;
              BAQ= BW(I);
              PAY = TP(I);
              TTP = TP(I) - BAQ;
              TOTP = TTP + BAQ;
              ITOTP = 1/TOTP;
         END;
         ELSE;
         IF PG EQ I AND NSHR NE 0 THEN DO;
               BAQ = BWO(I);
               PAY = TP(I);
               TTP = PAY - BW(I);
               TOTP = BAQ + TTP;
               ITOTP = 1/TOTP;
          END;
      END;
DATA DATA540;
      SET DATA540;
PROC SORT DATA = DATA540;
         BY PG NSHR HT BR COST ICOST ITOTP TOTP;
DATA DATAOUT.DATA540;
     SET DATA540;
     KEEP PG NSHR HT BR COST ICOST ITOTP TOTP;
 PROC UNIVARIATE DATA=DATA540 NOPRINT;
      VAR COST ICOST;
      BY PG NSHR HT BR ITOTP TOTP;
      OUTPUT OUT=DATA541
      MEDIAN=MCOST
      MEDIAN=IMCOST
      N=NUMB;
DATA DATAOUT.DATA541;
     SET DATA541;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC PLOT DATA=DATA541;
     PLOT MCOST*TOTP;
     PLOT IMCOST*ITOTP;
PROC UNIVARIATE DATA=DATA541 PLOT NORMAL;
      VAR MCOST;
PROC UNIVARIATE DATA=DATA541 PLOT NORMAL;
      VAP IMCOST;
PROC REG DATA=DATA541 SIMPLE;
MODEL MCOST=TOTP;
OUTPUT OUT=DATA546
        P=MCSTHT
        R=RESID;
MODEL IMCOST=ITOTP;
OUTPUT OUT=DATA547
        P=IMCSTHT
        R=RESID;
PROC PLOT DATA=DATA546;
```

```
     PLOT RESID*TOTP/VREF=0;
     PLOT RESID*MCSIHT/VREF=0;
PROC PLOT DATA=DATA547;
     PLOT RESID*ITOTP/VREF=0;
     PLOT RESID*IMCSIHT/VREF=0;
PROC UNIVARIATE DATA=DATA546 PLOT NORMAL;
      VAR RESID;
PROC UNIVARIATE DATA=DATA547 PLOT NORMAL;
      VAR RESID;
PROC SORT DATA = DATA541 OUT=DATA541A;
          BY TOTP;
DATA DATAOUT.DATA541A;
     SET DATA541A;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP;
PROC RSREG DATA=DATA541A;
      MODEL MCOST=TOTP/LACKFIT;
PROC SORT DATA = DATA541 OUT=DATA541B;
          BY ITOTP;
DATA DATAOUT.DATA541B;
     SET DATA541B;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541B;
      MODEL IMCOST=ITOTP/LACKFIT;
DATA DATA541C;
SET DATA541;
IF NSHR GT 1 THEN NSHR=1;
DATA DATAOUT.DATA541C;
     SET DATA541C;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC SORT DATA = DATA541C OUT=DATA541D;
          BY NSHR;
DATA DATAOUT.DATA541D;
     SET DATA541D;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC PLOT DATA=DATA541D;
     PLOT MCOST*TOTP;
     BY NSHR;
PROC PLOT DATA=DATA541D;
     PLOT IMCOST*ITOTP;
     BY NSHR;
PROC UNIVARIATE DATA=DATA541D PLOT NORMAL;
      VAR MCOST;
      BY NSHR;
PROC UNIVARIATE DATA=DATA541D PLOT NORMAL;
      VAR IMCOST;
      BY NSHR;
PROC REG DATA=DATA541D SIMPLE;
MODEL MCOST=TOTP;
OUTPUT OUT=DATA546D
        P=MCSIHT
        R=RESID;
    BY NSHR;
PROC REG DATA=DATA541D SIMPLE;
MODEL IMCOST=ITOTP;
OUTPUT OUT=DATA547D
        P=IMCSIHT
        R=RESID;
    BY NSHR;
PROC PLOT DATA=DATA546D;
     PLOT RESID*TOTP/VREF=0;
    BY NSHR;
PROC PLOT DATA=DATA546D;
     PLOT RESID*MCSIHT/VREF=0;
    BY NSHR;
PROC PLOT DATA=DATA547D;
     PLOT RESID*ITOTP/VREF=0;
    BY NSHR;
PROC PLOT DATA=DATA547D;
     PLOT RESID*IMCSIHT/VREF=0;
    BY NSHR;
PROC UNIVARIATE DATA=DATA546D PLOT NORMAL;
      VAR RESID;
```

```
    BY NSHR;
PROC UNIVARIATE DATA=DATA547D PLOT NORMAL;
      VAR RESID;
    BY NSHR;
PROC SORT DATA = DATA541D OUT=DATA541E;
         BY NSHR TOTP;
DATA DATAOUT.DATA541E;
     SET DATA541E;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541E;
      MODEL MCOST=TOTP/LACKFIT;
    BY NSHR;
PROC SORT DATA = DATA541D OUT=DATA541F;
         BY NSHR ITOTP;
DATA DATAOUT.DATA541F;
     SET DATA541F;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541F;
      MODEL IMCOST=ITOTP/LACKFIT;
      BY NSHR;
DATA DATA541G;
SET DATA541;
IF PG GE 1 AND PG LE 9 THEN PG=1;
IF PG GE 10 AND PG LE 19 THEN PG=2;
IF PG GE 20 AND PG LE 23 THEN PG=3;
DATA DATAOUT.DATA541G;
     SET DATA541G;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC SORT DATA = DATA541G OUT=DATA541H;
         BY PG;
DATA DATAOUT.DATA541H;
     SET DATA541H;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC PLOT DATA=DATA541H;
     PLOT MCOST*TOTP;
     BY PG;
PROC PLOT DATA=DATA541H;
     PLOT IMCOST*ITOTP;
     BY PG;
PROC UNIVARIATE DATA=DATA541H PLOT NORMAL;
      VAR MCOST;
      BY PG;
PROC UNIVARIATE DATA=DATA541H PLOT NORMAL;
      VAR IMCOST;
      BY PG;
PROC REG DATA=DATA541H SIMPLE;
MODEL MCOST=TOTP;
OUTPUT OUT=DATA546H
       P=MCSTHT
       R=RESID;
    BY PG;
PROC REG DATA=DATA541H SIMPLE;
MODEL IMCOST=ITOTP;
OUTPUT OUT=DATA547H
       P=IMCSTHT
       R=RESID;
    BY PG;
PROC PLOT DATA=DATA546H;
     PLOT RESID*TOTP/VREF=0;
    BY PG;
PROC PLOT DATA=DATA546H;
     PLOT RESID*MCSTHT/VREF=0;
    BY PG;
PROC PLOT DATA=DATA547H;
     PLOT RESID*ITOTP/VREF=0;
    BY PG;
PROC PLOT DATA=DATA547H;
     PLOT RESID*IMCSTHT/VREF=0;
    BY PG;
PROC UNIVARIATE DATA=DATA546H PLOT NORMAL;
      VAR RESID;
    BY PG;
```

```
PROC UNIVARIATE DATA=DATA547H PLOT NORMAL;
      VAR RESID;
    BY PG;
PROC SORT DATA = DATA541H OUT=DATA541I;
         BY PG TOTP;
DATA DATAOUT.DATA541I;
     SET DATA541I;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541I;
      MODEL MCOST=TOTP/LACKFIT;
    BY PG;
DATA DATA541J;
      SET DATA541H;
PROC SORT DATA = DATA541H;
         BY PG ITOTP;
DATA DATAOUT.DATA541J;
     SET DATA541J;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541J;
      MODEL IMCOST=ITOTP/LACKFIT;
      BY PG;
DATA DATA541K;
SET DATA541;
IF NSHR GT 1 THEN NSHR=1;
IF PG GE 1 AND PG LE 9 THEN PG=1;
IF PG GE 10 AND PG LE 19 THEN PG=2;
IF PG GE 20 AND PG LE 23 THEN PG=3;
DATA DATAOUT.DATA541K;
     SET DATA541K;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP;
PROC SORT DATA = DATA541K OUT=DATA541L;
         BY NSHR PG;
DATA DATAOUT.DATA541L;
     SET DATA541L;
     KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP;
PROC PLOT DATA=DATA541L;
     PLOT MCOST*TOTP;
     BY NSHR PG;
PROC PLOT DATA=DATA541L;
     PLOT IMCOST*ITOTP;
     BY NSHR PG;
PROC UNIVARIATE DATA=DATA541L PLOT NORMAL;
      VAR MCOST;
      BY NSHR PG;
PROC UNIVARIATE DATA=DATA541L PLOT NORMAL;
      VAR IMCOST;
      BY NSHR PG;
PROC REG DATA=DATA541L SIMPLE;
MODEL MCOST=TOTP;
OUTPUT OUT=DATA546L
        P=MCSTHT
        R=RESID;
    BY NSHR PG;
PROC REG DATA=DATA541L SIMPLE;
MODEL IMCOST=ITOTP;
OUTPUT OUT=DATA547L
        P=IMCSTHT
        R=RESID;
    BY NSHR PG;
PROC PLOT DATA=DATA546L;
     PLOT RESID*TOTP/VREF=0;
    BY NSHR PG;
PROC PLOT DATA=DATA546L;
     PLOT RESID*MCSTHT/VREF=0;
    BY NSHR PG;
PROC PLOT DATA=DATA547L;
     PLOT RESID*ITOTP/VREF=0;
    BY NSHR PG;
PROC PLOT DATA=DATA547L;
     PLOT RESID*IMCSTHT/VREF=0;
    BY NSHR PG;
PROC UNIVARIATE DATA=DATA546L PLOT NORMAL;
```

```
        VAR RESID;
    BY NSHR PG;
PROC UNIVARIATE DATA=DATA547L PLOT NORMAL;
        VAR RESID;
    BY NSHR PG;
PROC SORT DATA = DATA541L OUT=DATA541M;
          BY NSHR PG TOTP;
DATA DATAOUT.DATA541M;
      SET DATA541M;
      KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541M;
       MODEL MCOST=TOTP/LACKFIT;
    BY NSHR PG;
DATA DATA541N;
       SET DATA541L;
PROC SORT DATA = DATA541L;
          BY NSHR PG ITOTP;
DATA DATAOUT.DATA541N;
      SET DATA541N;
      KEEP PG NSHR HT BR MCOST IMCOST ITOTP TOTP NUMB;
PROC RSREG DATA=DATA541N;
       MODEL IMCOST=ITOTP/LACKFIT;
       BY NSHR PG;
OPTIONS LINESIZE=80;
/*
//
```

APPENDIX C

TABLES 1 - 14

TABLE 1

Analysis Results for the Current Model with all of the Data Used

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
510	104	9.89×10^{-4} 2.917	3.986 6.547	.0001 .0001	42.857	.0001	.1099	<.01	2.362 .0016	.2959 .2890
512	108	.0011037 3.015306	2.854 4.343	.0052 .0001	18.862	.0001	.209821	<.01	1.245 .02208	.1511 .1431
520	258	1.43×10^{-3} 2.178	10.256 8.889	.0001 .0001	79.008	.0001	.1212	.01	.910 .6286	.2358 .2329
522	291	.00118256 1.90898	7.992 4.660	.0001 .0001	21.798	.0001	.167234	.01	1.579 .0200	.0701 .0669
530	399	9.926×10^{-4} 2.781	9.151 14.887	.0001 .0001	221.622	.0001	.1236	<.01	2.699 .0001	.3583 .3566
532	463	1.316×10^{-3} 2.45	7.475 8.593	.0001 .0001	73.832	.0001	.1682	<.01	2.113 .0001	.1380 .1362
540	516	9.88×10^{-4} 2.95	8.240 15.351	.0001 .0001	235.658	.0001	.150052	<.01	2.313 .0001	.3144 .3130
542	598	.00130257 2.66358083	10.229 11.750	.0001 .0001	138.074	.0001	.160471	<.01	3.125 .0001	.1881 .1867
550	471	7.236×10^{-4} 3.122	6.340 15.730	.0001 .0001	247.420	.0001	.1567	<.01	1.496 .0275	.3454 .3444

TABLE 1 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
552	558	.001111	8.514	.0001					2.466	.2118
		2.83611	12.222	.0001	149.387	.0001	.151591	<.01	.0001	.2104
560	473	7.640×10^{-4}	8.226	.0001					2.520	.3777
		2.749	16.908	.0001	285.870	.0001	.135	<.01	.0001	.3764
562	546	.001074816	8.272	.0001	122.317	.0001	.160163	<.01	3.142	.1836
		2.55568732	11.060	.0001					.0001	.1821
570	481	6.77×10^{-4}	8.716	.0001	353.175	.0001	.137	<.01	2.815	.4244
		2.575	10.793	.0001					.0001	.4232
572	571	.001011844	10.411	.0001	176.280	.0001	.164678	.01	3.744	.2365
		2.33022298	13.277	.0001					.0001	.2352
580	361	7.3740×10^{-4}	7.308	.0001					2.297	.3327
		2.309	13.191	.0001	174.006	.0001	.1352	<.01	.0001	.3328
582	402	.00893044	8.278	.0001					3.546	.2103
		2.17604100	10.320	.0001	106.498	.0001	.152866	<.01	.0001	.2083
590	417	6.540×10^{-4}	8.109	.0001					3.218	.3502
		2.143	14.955	.0001	223.646	.0001	.1192	<.01	.0001	.3486
592	479	.0008574	9.147	.0001					3.911	.2323
		2.031537	12.013	.0001	144.319	.0001	.134009	.01	.0001	.2307

TABLE 1 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
600	398	$4.51X10^{-4}$	6.420	.0001					2.553	.4408
		2.252	17.667	.0001	312.140	.0001	.128	<.01	.0001	.4394
602	471	.000627068	6.925	.0001					2.806	.2688
		2.19271794	13.129	.0001	172.374	.0001	.149223	.01	.0001	.2672
610	488	$6.48X10^{-4}$	9.349	.0001					2.402	.3336
		1.8565	14.255	.0001	203.206	.0001	.145	<.01	.0001	.3319
612	500	.000874881	8.644	.0001					3.308	.1529
		1.8403528	9.488	.0001	89.868	.0001	.161304	<.01	.0001	.512
620	319	$4.69X10^{-4}$	6.428	.0001					2.360	.3762
		1.806	3.824	.0001	191.158	.0001	.1123	<.01	.0001	.3742
622	370	$6.11X10^{-4}$	6.721	.0001					3.951	.2405
		1.782	10.794	.0001	116.513	.0001	.137	<.01	.0001	.2384
630	73	$2.44X10^{-4}$	.937	.3521					1.169	.3139
		2.683	5.700	.0001	32.490	.0001	.078	>.15	.3173	.3043
632	76	.000259479	1.004	.3186					1.234	.3132
		2.6957	5.010	.0001	33.752	.0001	.209575	.01	.2618	.3040
640	381	$4.987X10^{-4}$	4.622	.0001					1.348	.2542
		1.982	10.094	.0001	101.892	.0001	.19606	<.01	.0874	.2517

TABLE 1 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
642	351	.000683	6.249	.0001					2.016	.1927
		1.84790942	9.128	.0001	83.312	.0001	.179386	.01	.0085	.1904

TABLE 2

Analysis Results for the Current Model with the Data Divided by Dependency Status

Data Set	NHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
510	0	68	$9.4X10^{-4}$	4.541	.0001					.802	.4185
			2.529	6.892	.0001	47.499	.0001	.072	>.15	.6763	.4097
	1	36	$8.89X10^{-4}$	1.680	.1022					1.565	.3359
			4.922	4.147	.0002	17.199	.0002	.064	<.01	.1748	.3164
520	0	140	$1.26X10^{-3}$	7.620	.0001					.559	.2971
			2.27	7.637	.0001	58.321	.0001	.168	<.01	.9330	.2920
	1	118	$1.64X10^{-3}$	7.27	.0001					.743	.1955
			2.101	5.309	.0001	28.182	.0001	.113	<.01	.7538	.1885
530	0	210	$1.24X10^{-3}$	14.088	.0001					1.313	.3951
			1.828	11.656	.0001	135.871	.0001	.0623	.045	.1750	.3922
	1	189	$8.44X10^{-4}$	4.484	.0001					.832	.4051
			3.54	11.285	.0001	127.355	.0001	.119	<.01	.6723	.4020
540	0	256	.0011	11.156	.0001					.844	.3526
			2.11	11.761	.0001	138.318	.0001	.1199	<.01	.6581	.3500
	1	260	$9.74X10^{-4}$	5.202	.0001					1.274	.3036
			3.274	10.606	.0001	112.495	.0001	.1384	<.01	.1929	.3009

TABLE 2 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
550	0	236	9.33×10^{-4} 2.23	12.861 16.730	.0001 .0001	270.877	.0001	.067	.012	.919 .5747	.5446 .5427
	1	235	7.017×10^{-4} 3.589	3.380 10.453	.0009 .0001	109.274	.0001	.165	.01	.450 .9807	.3193 .3163
560	0	240	8.39×10^{-4} 2.116	9.243 12.496	.0001 .0001	156.156	.0001	.151	<.01	.625 .8980	.3962 .3936
	1	233	8.85×1^{-4} 2.971	5.744 11.681	.0001 .0001	136.436	.0001	.135	<.01	1.414 .1179	.3713 .3686
570	0	249	8.82×10^{-4} 1.732	13.527 14.155	.0001 .0001	200.363	.0001	.104	<.01	.684 .8476	.4479 .4456
	1	232	6.55×1^{-4} 3.019	4.948 13.702	.0001 .0001	187.753	.0001	.115	<.01	.880 .6128	.4494 .4470
580	0	193	8.92×10^{-4} 1.526	12.918 11.972	.0001 .0001	143.325	.0001	.0882	<.01	1.067 .3884	.4287 .4257
	1	158	8.07×10^{-4} 2.693	4.197 8.627	.0001 .0001	74.428	.0001	.133	<.01	.568 .9287	.3230 .3187

TABLE 2 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
590	0	224	8.081×10^{-4}	10.887	.0001					.577	.3222
			1.422	10.273	.0001	105.530	.0001	.0741	<.01	.9254	.3191
	1	193	6.576×10^{-4}	4.861	.0001					1.507	.3990
			2.571	11.261	.0001	126.821	.0001	.0966	<.01	.0803	.3959
600	0	210	6.99×10^{-4}	11.312	.0001					1.180	.4127
			1.42	12.089	.0001	146.153	.0001	.0805	<.01	.2753	.4099
	1	188	3.13×10^{-4}	2.670	.0083					.395	.5129
			2.838	13.995	.0001	195.860	.0001	.1031	<.01	.9910	.5103
610	0	222	8.563×10^{-4}	13.677	.0001					1.343	.2566
			1.072	8.715	.0001	75.946	.0001	.1346	<.01	.1514	.2532
	1	186	5.36×10^{-4}	4.542	.0001					.318	.421
			2.443	11.566	.0001	133.769	.0001	.1264	<.01	.9982	.4178
620	0	182	6.31×10^{-4}	12.373	.0001					1.038	.4120
			1.122	11.230	.0001	126.122	.0001	.3789	<.01	.4209	.4087
	1	137	5.46×10^{-4}	3.803	.0002					.467	.3627
			2.044	8.766	.0001	76.836	.0001	.132	<.01	.9672	.3580

TABLE 2 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
630	0	52	5.068×10^{-4}	1.864	.0681					1.124	.2087
			1.88	3.632	.0007	13.188	.0007	.2455	<.01	.3713	.1929
	1	21	-2.92×10^{-4}	-.048	.9623					.284	.4308
			3.71	3.792	.0012	14.378	.0012	.887	.019	.9345	.4808
640	0	174	4.68×10^{-4}	6.304	.0001					.919	.4723
			1.734	12.407	.0001	153.975	.0001	.011	<.01	.5633	.4692
	1	127	7.011×10^{-4}	3.074	.0026					.737	.1748
			2.074	5.145	.0001	26.472	.0001	.1266	<.01	.7731	.1682
512	0	68	9.408×10^{-4}	4.541	.0001					.802	.4185
			2.5296	6.892	.0001	47.499	.0001	.07183	>.15	.6763	.4097
	1	40	1.065×10^{-3}	1.149	.2576					.368	.1537
			4.473	2.627	.0124	6.901	.0124	.7509	<.01	.9638	.1314
522	0	140	1.254×10^{-3}	7.620	.0001					.579	.2971
			2.227	7.637	.0001	58.321	.0001	.16823	<.01	.9330	.2920
	1	151	2.363×10^{-3}	5.872	.0001					1.093	.0313
			1.5836	2.195	.0297	4.820	.0297	.17902	<.01	.3666	.0248

TABLE 2 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
532	0	210	1.243×10^{-3}	14.088	.0001					1.313	.3951
			1.828	11.656	.0001	135.871	.0001	.0623	.045	.1750	.3922
	1	253	1.44×10^{-3}	4.758	.0001					.0624	.1291
			3.194	6.101	.0001	37.221	.0001	.152	<.01	.8930	.1257
542	0	256	1.074×10^{-3}	11.156	.0001					.844	.3526
			2.109	11.761	.0001	138.318	.0001	.1199	<.01	.6581	.3500
	1	342	1.66×1^{-3}	8.560	.0001					.399	.1598
			2.6956	8.041	.0001	64.653	.0001	.121653	<.01	.5937	.1573
552	0	236	9.33×10^{-4}	12.861	.0001					.910	.5445
			2.2313	16.730	.0001	279.877	.0001	.06656	.012	.5747	.5427
	1	322	1.372×10^{-3}	6.620	.0001					.568	.1788
			3.0075	8.347	.0001	69.679	.0001	.1237	.01	.9326	.1762
562	0	240	.000839	9.243	.0001					.625	.3962
			2.1158	12.496	.0001	156.156	.0001	.151228	<.01	.8980	.3936
	1	306	.00145	6.915	.0001					1.621	.1382
			2.51795	6.982	.0001	48.742	.0001	.14288	<.01	.0470	.1353

TABLE 2 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
572	0	249	8.82×10^{-4}	13.527	.0001					.684	.4479
			1.732	14.155	.0001	200.363	.0001	.1042	<.01	.8476	.4456
	1	322	1.254×10^{-3}	8.404	.0001					.843	.2205
			2.493	9.513	.0001	90.494	.0001	.1184	<.01	.6598	.2180
582	0	193	.000892	12.918	.0001					1.067	.4287
			1.5257	11.972	.0001	143.325	.0001	.0882	<.01	.3884	.4257
	1	209	.00133	6.639	.0001					.823	.1785
			2.273	6.707	.0001	44.988	.0001	.1205	<.01	.6839	.1746
592	0	224	.000808	10.887	.0001					.577	.3222
			1.4216	10.273	.0001	105.530	.0001	.0740587	<.01	.9254	.3191
	1	255	.00102667	7.078	.0001					1.251	.2432
			2.2965	9.017	.0001	81.306	.0001	.09796	<.01	.2106	.2402
602	0	210	.0007	11.312	.0001					1.180	.4127
			1.4200	12.089	.0001	146.153	.0001	.0805188	<.01	.2753	.4099
	1	261	.0006	4.569	.0001					.446	.2815
			2.69775	10.074	.0001	101.488	.0001	.131211	<.01	.9819	.2788

TABLE 2 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
612	0	222	.000856	13.677	.0001					1.343	.2566
			1.0724	8.715	.0001	75.946	.0001	.13464	<.01	.1514	.2532
	1	278	.000964	5.952	.0001					1.043	.1676
			2.27204	7.454	.0001	55.569	.0001	.134698	<.01	.4120	.1646
622	0	182	.00063	12.373	.0001					1.038	.4120
			1.122	11.230	.0001	126.122	.0001	.0789	<.01	.4209	.4087
	1	188	8.656	5.497	.0001					1.544	.2005
			1.833	6.829	.0001	46.635	.0001	.132	<.01	.0805	.1962
632	0	52	.00507	1.864	.0681					1.124	.2087
			1.876	3.632	.0007	13.188	.0007	.245	<.01	.3713	.1929
	1	24	.000915	.163	.872					.349	.4102
			3.55	3.911	.0008	15.299	.0008	.893	<.016	.9167	.3834
642	0	174	.0046084	6.304	.0001					.964	.4723
			1.7342	12.407	.0001	153.935	.0001	.1267	<.01	.5061	.4692
	1	177	.00102	5.263	.0001					.799	.1240
			1.73	4.977	.0001	24.775	.0001	.1418	<.01	.6988	.1190

TABLE 3

Analysis Results for the Current Model with the Data Divided by Paygrade

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	69	1.45×10^{-3} 2.23	3.372 3.259	.0012 .0018	10.619	.0018	.1381	<.01	3.334 .0006	.1368 .1239
510	2	28	7.75×10^{-5} 5.015	.127 3.368	.9001 .0024	11.343	.0024	.9654	.492	1.064 .4344	.3038 .2770
	3	7	-5.49×10^{-4} 8.161	-.467 1.768	.6603 .1372	3.127	.1372	.9752	.923	16.732 .0236	.3848 .2617
	1	155	1.19×10^{-3} 2.476	5.254 7.204	.0001 .0001	51.907	.0001	.1315	<.01	.774 .7048	.2533 .2484
520	2	82	9.84×10^{-4} 3.38	2.089 2.995	.0399 .0036	8.971	.0036	.1219	<.01	.663 .8263	.1008 .0896
	3	21	4.6×10^{-4} 6.68	.366 1.326	.7181 .1997	1.765	.1997	.9339	.217	2.898 .0582	.0850 .0368

TABLE 3 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	232	1.295×10^{-3}	5.571	.0001					4.323	.1799
			2.399	7.103	.0001	50.456	.0001	.146	<.01	.0001	.1763
530	2	125	1.234×10^{-3}	6.280	.0001					1.057	.1360
			2.056	4.400	.0001	19.360	.0001	.0695	.142	.4059	.1290
	3	42	1.81×10^{-4}	.312	.7564					1.408	.1277
			5.659	2.419	.0202	5.854	.0202	.804	<.01	.2511	.1059
	1	276	8.88×10^{-4}	3.482	.0006					3.378	.1968
			3.007	8.193	.0001	67.122	.0001	.163	<.01	.0001	.1938
540	2	184	1.337×10^{-3}	7.716	.0001					1.473	.0927
			1.789	4.337	.0001	18.806	.0001	.0979	<.01	.0833	.0878
	3	54	4.16×10^{-4}	.788	.4343					1.594	.1027
			5.261	2.439	.0182	5.951	.0182	.158	<.01	.1794	.0854

TABLE 3 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	259	5.14×10^{-4}	1.975	.0494					1.932	.2404
			3.377	9.018	.0001	81.324	.0001	.171	<.01	.0184	.2374
550	2	161	7.23×10^{-4}	3.573	.0005					2.212	.2191
			3.266	6.680	.0001	44.619	.0001	.086	<.01	.0052	.2142
	3	51	7.01×10^{-4}	1.951	.0568					1.891	.0907
			3.3	2.211	.0317	4.888	.0317	.137	.018	.1285	.0721
	1	260	8.19×10^{-4}	3.945	.0001					3.627	.2375
			2.699	8.963	.0001	80.342	.0001	.149	<.01	.0001	.2345
560	2	161	9.88×10^{-4}	5.937	.0001					2.255	.1448
			2.079	5.189	.0001	26.930	.0001	.0772	.02	.0043	.1395
	3	52	3.79	1.068	.2906					3.446	.1593
			4.53	3.078	.0034	9.476	.0034	.148	.01	.0101	.1425

TABLE 3 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	260	5.64×10^{-4}	3.168	.0017					4.167	.3036
			2.735	10.606	.0001	112.491	.0001	.1403	<.01	.0001	.3009
570	2	162	1.126×10^{-3}	6.181	.0001					1.872	.0652
			1.484	3.340	.0010	11.153	.0010	.1146	<.01	.0226	.0593
	3	59	2.198×10^{-4}	.925	.3587					1.563	.2651
			4.512	4.534	.0001	20.559	.0001	.056	>.15	.1861	.2522
	1	210	7.2×10^{-4}	3.170	.0018					3.553	.1917
			2.33	7.023	.0001	49.324	.0001	.159	<.01	.0001	.1878
580	2	98	6.84×10^{-4}	3.507	.0007					2.381	.2073
			2.459	5.011	.0001	25.110	.0001	.1066	<.01	.0046	.1991
	3	43	1.005×10^{-3}	2.717	.0096					2.789	.0155
			1.213	.803	.4268	.644	.4268	.922	<.01	.0404	-.0085

TABLE 3 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	230	7.684×10^{-4}	4.174	.0001					5.258	.1960
			2.0175	7.456	.0001	55.593	.0001	.1344	<.01	.0001	.1925
590	2	135	6.73×10^{-4}	4.445	.0001					1.509	.1633
			1.883	5.095	.0001	25.963	.0001	.0553	>.15	.0992	.1570
	3	52	4.833×10^{-4}	1.212	.2312					.509	.0706
			3.184	1.949	.0569	3.800	.0569	.1564	<.01	.7678	.0520
	1	218	4.72×10^{-4}	3.100	.0022					4.042	.3091
			2.257	9.430	.0001	96.625	.0001	.1351	<.01	.0001	.3059
600	2	136	8.155×10^{-4}	5.188	.0001					1.042	.0698
			1.22	3.170	.0019	10.049	.0019	.109	<.01	.4200	.0628
	3	44	6.25×10^{-4}	2.203	.0332					1.249	.0436
			1.636	1.383	.1739	1.914	.1739	.883	<.01	.3071	.0208

TABLE 3 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	194	8.18×10^{-4}	4.589	.0001					3.184	.1632
			1.6397	6.118	.0001	37.432	.0001	.162	<.01	.0001	.1588
610	2	157	$>.304 \times 10^{-4}$	5.319	.0001					1.802	.1274
			1.586	4.758	.0001	22.636	.0001	.1104	<.01	.0306	.1218
	3	57	5.266×10^{-4}	3.196	.0023					1.471	.1517
			2.234	3.136	.0028	9.833	.0028	.1717	<.01	.2076	.1362
	1	172	5.714×10^{-4}	3.3	.0012					2.830	.2019
			1.673	6.56	.0001	42.994	.0001	.139	<.01	.0005	.1972
620	2	102	4.55×10^{-4}	2.83	.0057					3.072	.1704
			1.785	4.531	.0001	20.533	.0001	.0814	.094	.0004	.1621
	3	45	4.9×10^{-5}	.230	.8188					.214	.2737
			3.483	4.025	.0002	16.202	.0002	.924	<.01	.9292	.2568

TABLE 3 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	53	4.064×10^{-4} 2.468	.843 3.171	.4031 .0026	10.058	.0026	.2486	<.01	1.363 .2259	.1647 .1483
630	2	13	9.959 .2566	2.709 .258	.0203 .8008	.067	.8008	.965	.769	3.230 .0937	.0060 -.0843
	3	7	1.040×10^{-3} -.631	1.701 -.250	.1496 .8126	.062	.8126	.985	.978	1.852×10^{11} 1.000	.0123 -.1852
	1	161	2.35×10^{-4} 2.3344	1.072 7.180	.2852 .0001	51.552	.0001	.1701	<.01	1.080 .3795	.2448 .2401
640	2	97	8.76×10^{-4} 1.142	2.176 1.444	.0321 .2554	1.309	.2554	.2689	<.01	1.788 .0446	.0136 .0032
	3	43	6.84×10^{-4} 1.342	1.863 .908	.0697 .3691	.825	.3691	.8478	<.01	1.130 .3575	.0197 -.0042

TABLE 3 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	71	1.697×10^{-3}	2.484	.0154					1.522	.0524
			2.1252	1.953	.0549	3.813	.0549	.253018	<.01	.1301	.0386
512	2	30	1.288×10^{-3}	-.137	.8923					1.441	.1946
			5.947	2.601	.0147	6.764	.0147	.8615	<.01	.2396	.1658
	3	7	-5.49×10^{-4}	-.467	.6603					16.732	.3848
			8.1609	1.768	.1372	3.127	.1372	.9752	.923	.0236	.2617
	1	169	1.99×10^{-3}	4.631	.0001					1.974	.0338
			1.598	2.416	.0168	5.836	.0168	.219	<.01	.0205	.0280
522	2	101	1.11×10^{-3}	2.068	.0412					1.811	.0822
			3.758	2.977	.0037	8.863	.0037	.1306	<.01	.0401	.0729
	3	21	4.606×10^{-4}	.364	.7181					2.898	.0850
			6.668	1.329	.1997	1.765	.1997	.9339	.217	.0582	.0368

TABLE 3 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	263	2.06×10^{-3}	5.418	.0001					2.598	.0317
			1.65	2.924	.0038	8.551	.0038	.192	<.01	.0009	.0280
532	2	157	1.192×10^{-3}	4.102	.0001					2.668	.1002
			2.83	4.155	.0001	17.267	.0001	.1014	<.01	.0007	.0944
	3	43	2.22×10^{-4}	.382	.7044					1.408	.1188
			5.552	2.351	.0236	5.527	.0236	.8181	<.01	.2505	.0973
	1	308	.00154	5.548	.0001					4.101	.0987
			2.350	5.788	.0001	33.500	.0001	.173284	<.01	.0001	.0957
542	2	230	1.237×10^{-3}	4.458	.0001					4.524	.0739
			2.7877	4.265	.0001	18.192	.0001	.131429	<.01	.0001	.0698
	3	60	1.097×10^{-3}	1.385	.0154					1.978	.0154
			3.0709	.952	-.0016	.906	.3452	.237867	<.01	.1113	-.0016

TABLE 3 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	296	1.16×10^{-3}	4.111	.0001					2.621	.1275
			2.722	6.555	.0001	42.972	.0001	.17235	<.01	.0008	.1246
552	2	203	6.736×10^{-4}	2.303	.0223					3.891	.1453
			4.0588	5.846	.0001	34.174	.0001	.1185	<.01	.0001	.1411
	3	59	2.587×10^{-4}	.401	.6902					3.708	.0810
			5.924	2.241	.0289	5.022	.0289	.2023	<.01	.0098	.0648
	1	297	.00125	5.242	.0001					3.740	.1280
			2.3234	6.580	.0001	43.293	.0001	.154003	<.01	.0001	.1250
562	2	192	.00134	3.184	.0017					3.236	.0193
			1.9346	1.934	.0547	3.739	.0547	.198227	<.01	.0001	.0141
	3	57	4.3236×10^{-6}	.112	.9109					4.348	.2184
			6.1642	3.920	.0002	15.365	.0002	.16223	<.01	.0023	.2041

TABLE 3 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	302	1.156×10^{-3}	5.902	.0001					5.424	.1508
			2.127	7.298	.0001	53.262	.0001	.1759	<.01	.0001	.1479
572	2	201	1.0132×10^{-3}	3.748	.0002					3.389	.0609
			2.335	3.592	.0004	12.906	.0004	.1415	<.01	.0001	.0562
	3	68	5.9017×10^{-6}	.098	.9218					1.706	.0945
			6.524	2.624	.0108	6.884	.0108	.2469	<.01	.1458	.0807
	1	235	.001195	4.802	.0001					4.720	.0972
			1.8498	5.010	.0001	25.095	.0001	.1758	<.01	.0001	.0934
582	2	120	-5.94×10^{-6}	-.020	.9840					3.006	.2753
			4.7833	6.696	.0001	44.833	.0001	.1162	<.01	.0002	.2692
	3	47	.001479	2.360	.0227					3.425	.0001
			-.20024	-.078	.9381	.006	.9381	.79523	<.01	.0166	-.0221

TABLE 3 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	258	.001135	5.766	.0001					5.914	.1098
			1.655	5.618	.0001	31.561	.0001	.1462	<.01	.0001	.1063
592	2	166	$5.48X10^{-4}$	2.401	.0175					3.521	.1251
			2.668	4.843	.0001	23.452	.0001	.1137	<.01	.0001	.1198
	3	55	$5.68X10^{-7}$	.001	.9992					.742	.0869
			5.5	2.247	.0289	5.047	.0289	.1743	<.01	.5957	.0697
	1	253	.00078	4.844	.0001					5.026	.1985
			1.9617	7.885	.0001	62.174	.0001	.14337	<.01	.0001	.1953
602	2	170	.00033	1.189	.2360					1.548	.1028
			2.9125	4.389	.0001	19.259	.0001	.166856	<.01	.0811	.0975
	3	48	.00096741	.222	.8254					2.766	.1085
			4.249	2.367	.0222	5.600	.0222	.8239	<.01	.0396	.0895

TABLE 3 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	233	.001368	5.710	.0001					3.847	.0398
			1.148	3.094	.0022	9.574	.0022	.1854	<.01	.0001	.0356
612	2	202	.000734	3.176	.0017					3.584	.0689
			2.12977	3.846	.0002	14.789	.0002	.1365	<.01	.0001	.0642
	3	65	.000459	1.797	.0772					2.813	.1036
			2.9503	2.698	.0089	7.280	.0089	.2055	<.01	.0182	.0894
	1	194	9.097×10^{-4}	4.292	.0001					4.675	.0873
			1.358	4.287	.0001	18.375	.0001	.168	<.01	.0001	.0826
622	2	128	3.21×10^{-4}	1.608	.1104					4.888	.1764
			2.482	5.195	.0001	26.990	.0001	.1006	<.01	.0001	.1699
	3	48	-2.69×10^{-4}	-.935	.3545					1.061	.2851
			4.96	4.283	.0001	18.342	.0001	.861	<.01	.3877	.2695

TABLE 3 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	55	.000400	.840	.4044					1.433	.1673
			2.50255	3.263	.0019	10.645	.0019	.242623	<.01	.1871	.1515
632	2	14	.0005967	1.022	.3271					9.642	.0762
			1.548386	.995	.3395	.990	.3395	.889571	.087	.0038	-.0008
	3	7	.0010398	1.701	.1496					.939	.0123
			-.6313493	-.250	.8126	.062	.8126	.984646	.978	.3874	-.1852
	1	181	.000528	2.463	.0147					3.884	.1782
			2.026	6.231	.0001	38.821	.0001	.1489	<.01	.0001	.1736
642	2	124	.00057	1.552	.1232					4.229	.0512
			2.3073	2.565	.0115	6.580	.0115	.1981	<.01	.0001	.0434
	3	46	.00027	.487	.6289					1.658	.0508
			3.382	1.535	.1319	2.357	.1319	.7897	<.01	.1601	.0293

TABLE 4

Analysis Results for the Current Model with the Data Divided by Paygrade and Dependency Status

Data Set 510

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	48	1.46×10^{-3}	4.290	.0001					.854	.1916
			1.7844	3.302		10.905	.0019	.979	.67	.5509	.1741
	2	15	5.482×10^{-4}	.753	.4646					.518	.1938
			3.26	1.768	.1005	3.126	.1005	.905	.13	.7254	.1318
	3	5	9.10×10^{-3}	2.782	.0689					1.943	.2774
			1.441	1.073	.3619	1.152	.3619	.923	.487	.2980	.0365
1	1	21	1.35×10^{-3}	1.312	.2053					2.080	.1823
			3.39	2.058	.0536	4.235	.0536	.8391	<.01	.1263	.1392
	2	13	3.66×10^{-4}	.394	.7011					.647	.3317
			4.95	2.336	.0394	5.459	.0394	.986	.99	.6065	.2709
	3	5	—	—		—	—			2.022×10^{11}	—
										1.000	

TABLE 4 (Continued)

Data Set 520

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	87	1.49×10^{-3} 1.900	4.879 4.064	.0001 .0001	16.515	.0001	.1825	<.01	.714 .6615	.1627 .1528
	2	43	1.07×10^{-3} 2.634	2.745 2.750	.0089 .0088	7.563	.0088	.969	.428	.852 .5652	.1557 .1351
	3	10	6.99×10^{-4} 3.85	.604 .798	.5627 .4479	.637	.4479	.85613	.076	.372 .5611	.0737 .0420
1	1	68	8.317×10^{-4} 3.161	2.502 6.374	.0148 .0001	40.634	.0001	.1148	.025	.297 .9358	.3811 .3717
	2	39	1.13×10^{-3} 3.562	1.343 1.794	.1875 .0809	3.220	.0809	.784	<.01	.276 .9587	.0801 .0552
	3	11	2.47×10^{-3} .384	1.232 .050	.249 .9615	.002	.9615	.879	.12	1.261 .2940	.0003 .1108

TABLE 4 (Continued)

Data Set 530

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	119	1.7×10^{-3} 1.204	10.720 5.082	.0001 .0001	25.830	.0001	.078	.077	.889 .5187	.1808 .1738
	2	69	1.163×10^{-3} 1.990	4.379 3.109	.0001 .0028	9.665	.0028	.0704	>.15	.330 .9513	.1261 .1130
	3	22	8.9×10^{-4} 2.17	1.654 .969	.1138 .3442	.939	.3442	.881	.012	.327 .5743	.0448 -.0029
1	1	113	1.08×10^{-3} 3.27	2.608 5.590	.0104 .0001	31.247	.0001	.1435	<.01	1.134 .3475	.2197 .2126
	2	56	1.39×10^{-3} 1.954	5.013 2.995	.0001 .0041	8.969	.0041	.074	>.15	1.159 .3442	.1424 .1266
	3	20	4.41×10^{-4} 8.66	-.402 1.998	.6923 .0610	3.993	.0610	.827	<.01	.434 .5177	.1816 .1361

TABLE 4 (Continued)

Data Set 540

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	128	1.19×10^{-3} 1.96	5.875 6.317	.0001 .0001	39.911	.0001	.14873	<.01	.798 .5733	.2406 .2345
	2	102	1.41×10^{-3} 1.25	6.356 2.303	.0001 .0234	5.303	.0234	.0936	.026	.467 .8569	.0504 .0409
	3	26	2.994×10^{-4} 4.902	.429 1.732	.6716 .0961	3.00	.0961	.8596	<.01	4.603×10^{10} 1.000	.1111 .0741
1	1	148	9.84×10^{-4} 3.302	2.230 5.448	.0273 .0001	29.680	.0001	.1291	<.01	2.557 .0222	.1689 .1633
	2	84	1.465×10^{-3} 1.9009	5.964 3.333	.0001 .0013	11.106	.0013	.1231	<.01	.075 .9988	.1193 .1085
	3	28	4.26×10^{-4} 6.011	.597 2.054	.5555 .0502	4.217	.0502	.877	<.01	.118 .7340	.1396 .1065

TABLE 4 (Continued)

Data Set 550

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	9.99×10^{-4}	6.774	.0001					1.280	.4343
			2.14	9.638	.0001	92.889	.0001	.0811	.046	.2661	.4296
	2	86	1.188×10^{-3}	5.395	.0001					.594	.0971
			1.637	3.0006	.0035	9.038	.0035	.0894	.089	.7801	.0864
	3	27	5.23×10^{-4}	1.424	.1667					.227	.1755
			3.55	2.307	.0296	5.322	.0296	.974	.714	.6378	.1425
1	1	136	3.47×10^{-4}	.740	.4608					.626	.2213
			4.009	6.172	.0001	38.088	.0001	.175	<.01	.7353	.2155
	2	75	5.82×10^{-4}	1.935	.0568					.329	.3155
			4.107	5.800	.0001	33.644	.0001	.109	.026	.9519	.3061
	3	24	1.025×10^{-3}	1.694	.1043					.319	.0440
			2.5075	1.006	.3253	1.012	.3253	.903	.028	.5783	.0005

TABLE 4 (Continued)

Data Set 560

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	9.35×10^{-4}	4.595	.0001					.674	.2568
			2.003	6.466	.0001	41.808	.0001	.187	.01	.6956	.2506
	2	90	1.24×10^{-3}	5.861	.0001					.705	.0451
			1.072	2.038	.0446	4.152	.0446	.1076	.011	.6862	.0342
	3	27	8.13×10^{-4}	2.586	.0159					.538	.0706
			1.88	1.378	.1804	1.899	.1804	.921	.045	.5910	.0334
1	1	137	1.009×10^{-3}	3.017	.0031					2.417	.2161
			2.841	6.101	.0001	37.222	.0001	.1469	.01	.0234	.2103
	2	71	1.02×10^{-3}	4.499	.0001					.534	.2342
			2.429	4.594	.0001	21.107	.0001	.076	>.15	.8263	.2231
	3	25	5.15×10^{-4}	.802	.802					1.612	.1291
			4.709	1.846	1.846	3.409	.0778	.858	<.01	.2175	.0912

TABLE 4 (Continued)

Data Set 570

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	127	9.9×10^{-4}	7.998	.0001					.258	.3560
			1.578	8.313	.0001	69.111	.0001	.092	<.01	.9674	.3509
	2	91	1.04×10^{-3}	4.739	.0001					.760	.0637
			1.345	2.461	.0158	6.057	.0158	.172	<.01	.6384	.0532
	3	31	1.72×10^{-4}	.542	.5916					1.496	.2690
			4.426	3.267	.0028	10.674	.0028	.932	.066	.2420	.2438
1	1	133	4.58×10^{-4}	1.451	.1490					1.093	.3025
			3.286	7.537	.0001	56.812	.0001	.096	<.01	.3716	.2972
	2	71	1.33×10^{-3}	4.850	.0001					1.004	.0610
			1.397	2.117	.0378	4.483	.0378	.112	.025	.4425	.0474
	3	28	4.47×10^{-4}	1.273	.2143					.214	.2189
			3.884	2.699	.0120	7.286	.0120	.9631	.462	.6476	.1889

TABLE 4 (Continued)

Data Set 580

NSBR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	109	1.036×10^{-3}	7.575	.0001					.862	.2651
			1.305	6.213	.0001	38.604	.0001	.1029	<.01	.5403	.2583
0	2	61	5.38×10^{-4}	2.510	.0148					1.312	.2597
			2.52	4.549	.0001	20.696	.0001	.1103	.065	.2589	.2471
	3	23	8.07×10^{-4}	2.237	.0363					.569	.0449
			1.488	.994	.3316	.988	.3316	.953	.389	.4594	-.0006
	1	101	8.08×10^{-4}	1.815	.6725					.913	.1620
			2.704	4.374	.0001	19.132	.0001	.138	<.01	.5014	.1535
1	2	37	1.21×10^{-3}	3.748	.0006					1.172	.1169
			1.671	2.153	.0383	4.634	.0383	.948	.137	.3510	.0917
	3	20	1.56×10^{-3}	2.535	.0207					.362	.0016
			-.419	-.170	.8671	.029	.8671	.915	.082	.5553	-.0539

TABLE 4 (Continued)

Data Set 590

NSBR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	120	9.795×10^{-4}	6.642	.0001					.494	.1897
			1.197	5.257	.0001	27.633	.0001	.0905	.017	.8384	.1829
0	2	77	6.87×10^{-4}	3.794	.0003					.738	.1428
			1.585	3.535	.0007	12.499	.0007	.0469	>.15	.6573	.1314
	3	27	2.84×10^{-4}	.434	.6682					.00	.0684
			3.697	1.355	.1874	1.837	.1874	.662	<.01	.9971	.0312
	1	110	9.26×10^{-4}	2.820	.0057					2.541	.1829
			2.26	4.917	.0001	24.181	.0001	.117	<.01	.0189	.1754
1	2	58	7.69×10^{-4}	3.343	.0015					.446	.1878
			1.9851	3.598	.0007	12.946	.0007	.0962	>.15	.8870	.1733
	3	25	7.905×10^{-4}	1.692	.1041					.329	.0597
			2.2723	1.209	.2391	1.461	.2391	.9367	.169	.7231	.0188

TABLE 4 (Continued)

Data Set 600

NBHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	110	8.86×10^{-4} 1.19	8.612 7.361	.0001 .0001	54.183	.0001	.0796	.086	.643 .7210	.3341 .3279
	2	77	1.02×10^{-3} .477	4.813 .883	.0001 .3802	.779	.3802	.1561	<.01	.924 .5028	.0103 -.0029
	3	23	1.06×10^{-3} -.422	2.447 -.232	.0233 .8188	.054	.8188	.781	<.01	0.000 .9955	.0026 -.0449
1	1	108	2.63×10^{-4} 2.95	1.014 7.810	.3128 .0001	60.992	.0001	.1008	<.01	.353 .9267	.3652 .3592
	2	59	7.78×10^{-4} 1.56	3.422 2.912	.0012 .0051	8.479	.0051	.1363	<.01	.250 .9785	.1295 .1142
	3	21	2.00×10^{-4} 3.64	.626 2.756	.5389 .0126	7.598	.0126	.952	.41	.025 .8768	.2857 .2481

TABLE 4 (Continued)

Data Set 610

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	102	$1.23X10^{-3}$ .562	8.434 2.454	.0001 .0159	6.020	.0159	.128	<.01	.691 .6807	.0568 .0474
	2	89	$9.83X10^{-4}$ .670	7.117 1.950	.0001 .0544	3.803	.0544	.124	<.01	.576 .7943	.0419 .0309
	3	31	$5.1X10^{-4}$ 2.074	2.208 2.038	.0353 .0508	4.153	.0508	.833	<.01	1.988 .1565	.1253 .0951
1	1	92	$5.76X10^{-4}$ 2.405	1.830 5.310	.0706 .0001	28.199	.0001	.1172	<.01	.488 .8420	.2386 .2301
	2	68	$6.46X10^{-4}$ 2.1303	2.818 3.949	.0064 .0002	15.598	.0002	.079	>.15	.218 .9864	.1912 .1789
	3	26	$6.232X10^{-4}$ 2.087	2.770 2.191	.0106 .0384	4.802	.0384	.934	.116	.333 .7202	.1667 .1320

TABLE 4 (Continued)

Data Set 620

NSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	92	8.23×10^{-4}	8.042	.0001					.796	.2345
			.459	5.250	.0001	27.567	.0001	.058	>.15	.5938	.2260
	2	63	6.189×10^{-4}	3.956	.0002					.762	.1026
				2.641	.0105	6.977	.0105	.1333	<.01	.6373	.0879
	3	27	7.74×10^{-5}	.255	.8005					.572	.2218
			3.327	2.669	.0132	7.125	.0132	.866	<.01	.4569	.1907
1	1	80	8.64×10^{-4}	2.355	.0211					.459	.1226
			1.64	3.301	.0015	10.899	.0015	.1192	<.01	.8615	.1114
	2	39	6.87×10^{-4}	2.570	.0143					.961	.1704
			1.71	2.757	.0090	7.601	.0090	.933	.033	.4671	.1480
	3	18	3.1×10^{-5}	.102	.9198					.050	.3574
			3.61	2.983	.0088	8.900	.0088	.9595	.563	.8255	.3173

TABLE 4 (Continued)

Data Set 630

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	35	8.64 1.3605	1.580 1.490	.1236 .1456	2.221	.1456	.557	<.01	1.540 .2033	.0631 .0347
	2	10	8.66×10^{-4} .4853	2.475 .523	.0384 .6149	.274	.6149	.947	.613	3.526 .0971	.0331 -.0878
	3	7	1.040×10^{-3} .6313	1.701 -.250	.1496 .8126	.062	.8126	.9847	.978	.939 .3874	.0123 -.1852
1	1	18	4.671×10^{-7} 3.664	.001 2.762	.9996 .0139	7.629	.0139	.8774	.024	.291 .9081	.3229 .2805
	2	3	.0012345 0	Biased	—	—	—	—	—	1.689×10^{11} 1.000	

TABLE 4 (Continued)

Data Set 640

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 / ADJ R^2
0	1	89	4.625×10^{-4}	2.657	.0094					1.106	.3276
			1.77	6.511	.0001	42.392	.0001	.1275	<.01	.3676	.3199
	2	61	8.26×10^{-4}	6.787	.0001					.474	.0730
			.664	2.155	.0352	4.646	.0352	.0666	>.15	.8691	.0573
	3	24	5.59×10^{-4}	1.558	.1335					.090	.0477
			1.532	1.050	.3050	1.103	.3050	.844	<.01	.7676	.0045
1	1	72	1.117×10^{-4}	.259	.7965					.555	.2058
			2.737	4.259	.0001	18.143	.0001	.2053	<.01	.7904	.1945
	2	36	1.58×10^{-4}	1.583	.1228					.582	.0008
			.395	.165	.8697	.027	.8697	.693	<.01	.7645	-.0286
	3	19	1.018×10^{-3}	1.446	.1665					.426	.0012
			.4041	.144	.8868	.021	.8068	.9023	.054	.5234	-.0575

TABLE 4 (Continued)

Data Set 512

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	48	1.459×10^{-3} 1.7844	4.290 3.302	.0001 .0019	10.905	.0019	.97867	.67	1.280 .2661	.1916 .1741
	2	15	5.482×10^{-4} 3.2519	.753 1.768	.4646 .1005	3.126	.1005	.90466	.13	.594 .7801	.1938 .1318
	3	5	9.098×10^{-4} 1.4414	2.782 1.073	.0689 .3619	1.152	.3619	.923042	.487	.227 .6378	.2774 .0365
1	1	23	2.041×10^{-3} 3.0909	1.104 1.042	.2823 .3095	1.085	.3095	.73542	<.01	.581 .7723	.0491 .0038
	2	15	4.209×10^{-4} 5.538	.279 1.571	.7846 .1402	2.468	.1402	.9089	.165	.865 .5481	.1596 .0949
	3	2	Not full Biased	Rank Estimates	——	——	——	1	1	1.784 .1921	

TABLE 4 (Continued)

Data Set 522

NSRR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	87	1.484×10^{-3}	4.879	.0001					.742	.1627
			1.9003	4.064	.0001	16.515	.0001	.1825	<.01	.6171	.1528
	2	43	1.08×10^{-3}	2.745	.0089					.889	.1557
			2.634	2.750	.0088	7.563	.0088	.969	.428	.5258	.1351
	3	10	6.994×10^{-3}	.604	.5627					.372	.0737
			3.85	.798	.4479	.637	.4479	.85613	.076	.5611	-.0420
1	1	82	2.63	3.152	.0023					1.753	.0102
			1.155	.907	.3670	.823	.3670	.2237	<.01	.1208	-.0022
	2	58	1.74	2.179	.0336					1.103	.0508
			3.149	1.731	.0889	2.998	.0889	.1452	<.01	.3744	.0339
	3	11	2.47	1.232	.2493					1.991×10^{10}	.0003
			.3844	.050	.9615	.002	.9615	.879228	.12	1.000	-.1108

TABLE 4 (Continued)

Data Set 532

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
Ø	1	119	1.70×10^{-3}	10.720	.0001					.889	.1808
			1.204	5.082	.0001	25.830	.0001	.0778	.077	.5187	.1738
	2	69	1.16×10^{-3}	4.379	.0001					.330	.1261
			1.99	3.109	.0028	9.665	.0028	.0704	>.15	.9513	.1130
	3	22	8.94×10^{-4}	1.654	.1138					.327	.0448
			2.17	.969	.3442	.939	.3442	.881	.012	.5743	-.0029
1	1	144	2.464	3.716	.0003					.432	.0245
			1.844	1.889	.0609	3.569	.0609	.1696	.01	.8809	.0176
	2	88	1.55×10^{-3}	3.758	.0003					.807	.0830
			2.65	2.791	.0065	7.788	.0065	.0804	>.15	.5983	.0724
	3	21	-.00031	-.284	.7797					.167	.1616
			8.241	1.913	.0709	3.661	.0709	.8493	<.01	.6879	.1174

TABLE 4 (Continued)

Data Set 542

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	128	1.196×10^{-3}	5.875	.0001					1.168	.2406
			1.9604	6.317	.0001	39.911	.0001	.14873	<.01	.3262	.2345
	2	102	1.4105	6.356	.0001					.412	.0504
			1.2449	2.303	.0234	5.303	.0234	.0936	.026	.9109	.0409
	3	26	2.9943×10^{-4}	.429	.429					.348	.1111
			4.901	1.732	1.732	3.00	.0961	.8596	<.01	.5609	.0741
1	1	180	2.1296×10^{-3}	4.918	.0001					1.318	.0607
			2.0934	3.391	.0009	11.501	.0009	.13682	<.01	.2436	.0554
	2	128	1.6932×10^{-3}	4.079	.0001					.761	.0646
			2.704	2.949	.0038	8.697	.0038	.12669	<.01	.6378	.0571
	3	34	1.473×10^{-3}	1.278	.2105					.164	.0096
			2.6236	.557	.5816	.310	.5816	.727692	<.01	.8493	-.0214

TABLE 4 (Continued)

Data Set 552

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	9.99×10^{-4}	6.774	.0001					.661	.4343
			2.14	9.638	.0001	92.889	.0001	.0811	.046	.6812	.4296
	2	86	1.188×10^{-4}	5.395	.0001					.559	.0971
			1.637	3.006	.035	9.038	.0035	.0893	.089	.7881	.0864
	3	27	5.23	1.424	.1667					1.33×10^{11}	.1755
			3.549	2.307	.0296	5.322	.0296	.9741	.714	1.000	.1425
1	1	173	1.453×10^{-3}	3.205	.0016					.627	.0995
			2.849	4.346	.0001	18.885	.0001	.14392	<.01	.7088	.0942
	2	117	9.29×10^{-4}	2.258	.0258					.833	.01470
			4.23	4.452	.0001	19.817	.0001	.1126	<.01	.5633	.1396
	3	32	5.79×10^{-4}	.526	.6030					1.55×10^{10}	.0512
			5.638	1.272	.2132	1.617	.2132	.8073	<.01	1.000	.0195

TABLE 4 (Continued)

Data Set 562

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	9.35×10^{-4}	4.595	.0001					.674	.2568
			2.0036	6.466	.0001	41.808	.0001	.1862	<.01	.6956	.2506
	2	90	1.242×10^{-3}	5.861	.0001					.705	.0451
			1.0720	2.038	.0446	4.152	.0446	.1076	.011	.6862	.0342
	3	27	.000813	2.586	.0159					.538	.0706
			1.87933	1.378	.1804	1.899	.1804	.9203	.045	.5910	.0334
1	1	174	.00166	4.661	.0001					1.282	.0988
			2.2507	4.341	.0001	18.848	.0001	.1220	<.01	.2616	.0935
	2	102	.002107	2.977	.0036					2.042	.0041
			1.0450	.644	.5213	.414	.5213	.2071	<.01	.0499	-.0058
	3	30	9.22×10^{-5}	.136	.8931					2.123	.1856
			6.695	2.526	.0175	6.383	.0175	.913	.022	.1566	.1565

TABLE 4 (Continued)

Data Set 572

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	127	9.907×10^{-4}	7.998	.0001					.796	.3560
			1.578	8.313	.0001	69.111	.0001	.0918	<.01	.5938	.3509
	2	91	1.047×10^{-3}	4.739	.0001					.762	.0637
			1.345	2.461	.0158	6.057	.0158	.1716	<.01	.6373	.0532
	3	31	1.717×10^{-5}	.542	.5916					.572	.2690
			4.426	3.267	.0028	10.674	.0028	.9324	.066	.4569	.2438
1	1	175	1.49×10^{-3}	5.030	.0001					1.499	.1254
			2.1664	4.981	.0001	24.812	.0001	.1283	<.01	.1765	.1204
	2	110	1.339×10^{-3}	3.346	.0011					.718	.0509
			2.264	2.407	.0178	5.791	.0178	.1316	<.01	.6368	.0421
	3	37	2.88×10^{-4}	.265	.7923					.200	.0497
			5.969	1.354	.1846	1.832	.1846	.6918	<.01	.6603	.0226

TABLE 4 (Continued)

Data Set 582

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	109	.00104 1.305	7.575 6.213	.0001 .0001	38.604	.0001	.10285	<.01	.862 .5403	.2651 .2583
	2	61	.00054 2.52113	2.510 4.549	.0148 .0001	20.696	.0001	.1103	.065	1.312 .2589	.2597 .2471
	3	23	.000807 1.48822	2.237 .994	.0363 .3316	.988	.3316	.95257	.389	.569 .4594	.0449 -.0006
1	1	126	.00175 1.6735	4.114 2.734	.0001 .0072	7.477	.0072	.14727	<.01	.771 .6139	.0569 .0493
	2	59	.0004877 4.3997	1.006 3.985	.3186 .0002	15.876	.0002	.104187	.109	.872 .5466	.2179 .2041
	3	24	.00263 -3.8169	2.444 -.880	.0230 .3882	.775	.3882	.8489	<.01	.003 .9550	.0340 -.0099

TABLE 4 (Continued)

Data Set 592

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	120	9.79×10^{-4}	6.642	.0001					.494	.1897
			1.197	5.257	.0001	27.633	.0001	.0905	.017	.8384	.1829
	2	77	6.87×10^{-4}	3.794	.0003					.738	.1428
			1.585	3.535	.0007	12.499	.0007	.0469	>.15	.6573	.1314
	3	27	2.84×10^{-4}	.434	.6682					0	.0684
			3.6973	1.355	.1874	1.837	.1874	.6619	.01	.9971	.0312
1	1	138	1.567×10^{-3}	5.045	.0001					1.544	.0822
			1.579	3.49	.0007	12.178	.0007	.114993	<.01	.1572	.0754
	2	89	7.349×10^{-4}	2.165	.0331					1.245	.1249
			2.8242	3.523	.0007	12.412	.0007	.12281	<.01	.2848	.1148
	3	28	5.88×10^{-5}	.060	.9527					.256	.0783
			5.829	1.486	.1492	2.209	.1492	.6474	<.01	.7765	.0429

TABLE 4 (Continued)

Data Set 602

NSBR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	110	.0008850	8.612	.0001					.643	.3341
			1.18564	7.361	.0001	54.183	.0001	.079646	.086	.7210	.3279
0											
	2	77	.00102	4.813	.0001					.924	.0103
			.4764	.883	.3802	.779	.3802	.156058	<.01	.5028	-.0029
	3	23	.00106	2.447	.0233					10.00	.0026
			-.42202	-.232	.8188	.054	.8188	.780508	<.01	.9955	-.0449
	1	143	.00078	3.235	.0015					.408	.2322
			2.4104	6.529	.0001	42.633	.0001	.115855	<.01	.8962	.2267
1											
	2	93	.000352	.787	.4335					.420	.1047
			3.3417	3.262	.0016	10.643	.0016	.188759	<.01	.9059	.0949
	3	25	-.00055	-.827	.4166					.025	.2465
			7.416	2.743	.0116	7.526	.0116	.867476	<.01	.8764	.2138

TABLE 4 (Continued)

Data Set 612

NSHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	102	.00123	8.434	.0001					.805	.0568
			.56185	2.454	.0159	6.020	.0159	.127917	<.01	.5683	.0474
0											
	2	89	.000983	7.117	.0001					.652	.0419
			.67044	1.950	.0544	3.803	.0544	.12404	<.01	.7133	.0309
	3	31	.00051	2.208	.0353					3.974	.1253
			2.0743	2.038	.0508	4.153	.0508	.833	<.01	.0564	.0951
	1	131	.001566	4.095	.0001					.398	.0451
			1.446	2.467	.0149	6.086	.0149	.1268	<.01	.8791	.0377
1											
	2	113	.000964	2.737	.0072					.786	.0602
			2.1917	2.667	.0088	7.115	.0088	.143	<.01	.6022	.0518
	3	34	.0006407	1.484	.1475					.349	.0674
			2.739	1.520	.1382	2.312	.1382	.8665	<.01	.5593	.0382

TABLE 4 (Continued)

Data Set 622

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	92	8.23×10^{-4}	8.042	.0001					.382	.2345
			.859	5.250	.0001	27.567	.0001	.058	>.15	.8886	.2260
	2	63	6.19×10^{-4}	3.956	.0002					.786	.1026
			1.0456	2.641	.0105	6.977	.0105	.133	<.01	.6030	.0879
	3	27	7.74×10^{-5}	.255	.8005					2.27×10^{11}	.2218
			3.33	2.669	.0132	7.125	.0132	.866	<.01	1.000	.1907
1	1	102	1.61×10^{-3}	4.190	.0001					1.695	.0233
			.8414	1.545	.1254	2.389	.1254	.147	<.01	.1308	.0136
	2	65	7.65×10^{-4}	2.718	.0085					.769	.1382
			2.0378	3.179	.0023	10.106	.0023	.102	.013	.5781	.1246
	3	21	-5.46×10^{-4}	-1.022	.3195					9.62×10^{10}	.3219
			6.295	3.003	.0073	9.019	.0073	.878	.013	1.000	.2862

TABLE 4 (Continued)

Data Set 632

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	35	.000864	1.580	.1236					1.540	.0631
			1.3606	1.490	.1456	2.221	.1456	.55702	<.01	.2033	.0347
	2	10	.000866	2.475	.0384					3.526	.0331
			.485305	.523	.6149	.274	.6149	.94761	.613	.0971	.0878
	3	7	.00104	1.701	.1496					.939	.0123
			-.63135	-.250	.8126	.062	.8126	.984646	.978	.3874	-.1852
1	1	20	1.4×10^{-6}	.002	.9986					.333	.3188
			3.6648	2.903	.0095	8.425	.0095	.881189	.018	.8842	.2810
	2	4	-.00262	-2.213	.1574					1.689E+11	.8583
			11.13532	3.481	.0736	12.114	.0736	.950934	.623	1.000	.7875
	3	—									

TABLE 4 (Continued)

Data Set 642

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	89	.000462 1.7667	2.657 6.511	.0094 .0001	42.392	.0001	.127496	<.01	1.054 .3974	.3276 .3199
	2	61	.000826 .6637	6.787 2.155	.0001 .0352	4.646	.0352	.0666135	>.15	.539 .8020	.0730 .0573
	3	24	.00056 1.53167	1.558 1.050	.1335 .3050	1.103	.3050	.8446	<.01	1.787E+11 1.000	.0477 .0045
1	1	92	.000732 2.047	1.917 3.620	.0585 .0005	13.102	.0005	.151248	<.01	.676 .6693	.[illegible]271 .1174
	2	63	.00108 1.9897	1.702 1.335	.0938 .1869	1.782	.1869	.177886	<.01	.917 .4899	.0284 .0124
	3	22	.0002569 4.117	.236 .960	.8158 .3484	.922	.3484	.8635	<.01	2.666E+10 1.000	.0441 -.0037

TABLE 5

Analysis Results for Proposed Model with all of the Data Used

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
510	154	154.41	4.298	.0001					1.792	.4322
		.139	8.811	.0001	77.640	.0001	.0942	.023	.0230	.4266
512	108	139.4748	3.684	.0004					1.844	.4035
		.14128869	8.468	.0001	71.703	.0001	.0822531	.073	.0170	.3979
520	258	237.15693	13.754	.0001					1.939	.2735
		.0707	9.817	.0001	96.373	.0001	.0826	<.01	.0015	.2707
522	291	237.63268	11.907	.0001					2.695	.2223
		.07847	9.087	.0001	82.607	.0001	.0664785	<.01	.0001	.2196
530	399	199.71	14.186	.0001					1.684	.4993
		.1171	19.899	.0001	395.953	.0001	.0336	>.15	.0067	.4981
532	463	178.724	11.889	.0001					2.856	.4180
		.1155	18.196	.0001	331.080	.0001	.0293	>.15	.0001	.4167
540	516	248.92	14.523	.0001					2.879	.2742
		.098	13.936	.0001	194.202	.0001	.089	<.01	.0001	.2728
542	598	232.36133	13.447	.0001					4.170	.2230
		.0925	13.080	.0001	171.094	.0001	.0645457	<.01	.0001	.2217

TABLE 5 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
550	471	215.83	16.132	.0001					1.997	.5083
		.1194	22.018	.0001	484.776	.0001	.0281	>.15	.0004	.5072
552	558	199.77252	13.708	.0001					3.925	.3946
		.11313592	19.039	.0001	362.476	.0001	.0170506	>.15	.0001	.3936
560	473	245.054	16.107	.0001					3.048	.4571
		.12166	19.913	.0001	396.522	.0001	.0449	.021	.0001	.4559
562	546	222.51225	13.872	.0001					4.677	.3842
		.119848	18.422	.0001	339.371	.0001	.0287743	>.15	.0001	.3830
570	481	245.99	15.703	.0001					4.411	.5180
		.14	22.688	.0001	514.742	.0001	.038	.096	.0001	.5170
572	571	230.15645	13.573	.0001					5.975	.4043
		.13203231	19.651	.0001	386.157	.0001	.0319856	>.15	.0001	.4032
580	351	297.909	15.683	.0001					2.785	.4384
		.1272	16.507	.0001	272.492	.0001	.03303	>.15	.0001	.4368
582	402	275.49845	13.455	.0001					4.586	.3498
		.12292551	14.668	.0001	215.148	.0001	.0404081	.109	.0001	.3481
590	417	340.02	14.562	.0001					2.809	.3470
		.1384	14.851	.0001	220.554	.0001	.075279	<.01	.0001	.3455

TABLE 5 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
592	479	309.84798 .137323	13.011 14.327	.0001 .0001	205.258	.0001	.0606042	.01	4.003 .0001	.3009 .2994
600	398	313.365 .177	12.871 18.345	.0001 .0001	336.531	.0001	.053	<.01	2.420 .0001	.4594 .4580
602	471	280.93923 .17531766	11.066 17.133	.0001 .0001	293.527	.0001	.038313	.091	3.215 .0001	.3849 .3836
610	408	384.032 .1419	18.366 18.359	.0001 .0001	337.064	.0001	.0188	>.15	2.005 .0003	.4536 .4523
612	500	334.63110 .13994172	14.682 16.378	.0001 .0001	268.239	.0001	.0298363	>.15	4.108 .0001	.3501 .3488
620	319	358.51 .2046	12.003 17.368	.0001 .0001	301.646	.0001	.047	.084	2.335 .0001	.4876 .4860
622	370	313.90 .2051	10.044 16.394	.0001 .0001	268.761	.0001	.0398	>.15	4.417 .0001	.4221 .4205
630	73	261.76094 .21427	4.012 7.814	.0001 .0001	61.064	.0001	.2177	<.01	1.847 .0388	.4624 .4548
632	76	246.87582 .21724375	3.836 7.966	.0003 .0001	63.461	.0001	.0746837	>.15	1.995 .0212	.4617 .4544

TABLE 5 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
640	301	366.63	11.829	.0001					2.250	.4247
		.1804	14.856	.0001	220.695	.0001	.0244	>.15	.0009	.4227
642	351	336.13789	10.408	.0001					3.258	.3509
		.17543370	13.736	.0001	188.688	.0001	.0272841	>.15	.0001	.3491

TABLE 6

Analysis Results for Proposed Model with the Data Divided by Dependency Status

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
510	0	68	174.54	4.630	.0001					.707	.5457
			.146	8.904	.0001	79.283	.0001	.0981	.101	.7734	.5388
	1	36	133.78	1.940	.0607					2.197	.2994
			.1175	3.812	.0006	14.530	.0006	.896	<.01	.0528	.2788
520	0	140	226.58	10.018	.0001					.822	.4569
			.104	10.774	.0001	116.074	.0001	.0699	<.092	.825	.4529
	1	118	300.25	10.694	.0001					1.589	.1079
			.0455	3.745	.0003	14.028	.0003	.1211	<.01	.0778	.1002
530	0	210	238.883	12.843	.0001					.710	.5183
			.113	14.961	.0001	223.837	.0001	.0447	>.15	.8130	.5160
	1	189	167.57	8.486	.0001					1.046	.4992
			.116	13.652	.0001	186.38	.0001	.0410	>.15	.4123	.4965

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	256	258.76	13.780	.0001					.614	.4558
			.1092	14.585	.0001	212.719	.0001	.0362	>.15	.9005	.4536
540											
	1	260	246.51	9.356	.0001					2.477	.1756
			.082	7.414	.0001	54.964	.0001	.147	<.01	.0002	.1724
	0	236	247.09	13.249	.0001					.656	.5442
			.122	16.715	.0001	279.38	.0001	.053	.107	.8663	.5422
550											
	1	235	200.211	11.576	.0001					.758	.4915
			.1092	15.007	.0001	225.212	.0001	.0400	>.15	.7615	.4893
	0	240	290.015	14.431	.0001					1.151	.5184
			.123	16.005	.0001	256.158	.0001	.0667	<.01	.2972	.5163
560											
	1	233	228.197	11.288	.0001					1.493	.3993
			.1066	12.392	.0001	153.582	.0001	.052	.127	.0858	.3967

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
570	0	249	295.022	13.285	.0001					3.981	.5233
			.1390	16.468	.0001	271.183	.0001	.075	<.01	.0001	.5214
	1	232	216.72	11.050	.0001					1.668	.5335
			.1314	16.218	.0001	263.031	.0001	.0547	.089	.0694	.5315
580	0	193	358.802	14.577	.0001					1.078	.4702
			.1247	13.020	.0001	169.525	.0001	.0365	>.15	.3771	.4674
	1	158	261.9184	10.775	.0001					.939	.4268
			.1125	10.778	.0001	116.156	.0001	.0531	>.15	.5390	.4231
590	0	224	409.965	12.205	.0001					.687	.3298
			.13685	10.453	.0001	109.264	.0001	.0955	<.01	.8364	.3268
	1	193	285.80	10.523	.0001					2.242	.4084
			.1231	11.483	.0001	131.850	.0001	.0439	>.15	.0025	.4053

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	Significance Level	F	Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	210	399.61	12.141	.0001					2.038	.4423
			.1631	12.843	.0001	164.947	.0001	.0514	>.15	.0074	.4396
600											
	1	188	245.20014	7.365	.0001					1.145	.4873
			.1826	13.295	.0001	176.766	.0001	.073	.015	.3090	.4845
	0	222	464.59	16.747	.0001					1.162	.4411
			.131	13.176	.0001	173.606	.0001	.063	.031	.2907	.4385
610											
	1	196	312.60	11.099	.0001					1.107	.4952
			.1453	13.435	.0001	180.495	.0001	.057	.142	.3427	.4924
	0	182	511.39	12.521	.0001					.674	.4124
			.172	11.239	.0001	126.315	.0001	.0526	>.15	.8548	.4091
620											
	1	137	246.96	6.785	.0001					.593	.5805
			.2125	13.669	.0001	186.85	.0001	.088	<.01	.8988	.5774

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	52	383.31	4.838	.0001					1.603	.4090
			.1832	5.882	.0001	34.603	.0001	.1296	<.028	.1288	.3972
630											
	1	21	79.791	.807	.4296					.488	.5479
			.2482	4.798	.0001	23.022	.0001	.9527	.421	.8062	.5241
	0	174	416.87	11.444	.0001					1.442	.5012
			.1826	13.145	.0001	176.799	.0001	.4191	>.15	.1112	.4983
640											
	1	127	330.244	6.791	.0001					1.417	.3507
			.163	8.205	.0001	67.328	.0001	.0633	>.15	.1342	.3449

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
512	0	68	174.537	4.630	.0001					.707	.5457
			.146	8.904	.0001	79.283	.0001	.09807	.101	.7734	.5388
	1	40	99.0208	1.369	.1791					1.419	.2757
			.12414	3.804	.0005	14.468	.0005	.9414	.058	.2195	.2567
522	0	140	226.58	10.018	.0001					.822	.4569
			.1038	10.774	.0001	116.074	.0001	.0699	.092	.6825	.4529
	1	151	265.88	9.164	.0001					1.744	.0810
			.04614	3.623	.0004	13.125	.0004	.0895	<.01	.0394	.0748
532	0	210	238.883	12.843	.0001					.710	.5183
			.1132	14.961	.0001	223.837	.0001	.0447	>.15	.8130	.5160
	1	253	145.979	7.227	.0001					.814	.3809
			.1095	12.414	.0001	154.115	.0001	.0553	.058	.6950	.3780

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
542	0	256	258.766	13.780	.0001					.614	.4558
			.10916	14.585	.0001	212.719	.0001	.0362	>.15	.9005	.4536
	1	342	225.654	9.414	.0001					2.727	.1360
			.07335	7.317	.0001	53.537	.0001	.11604	<.01	.0001	.1335
552	0	236	247.08?	13.249	.0001					.656	.5442
			.12202	16.715	.0001	279.380	.0001	.0527	.107	.8663	.5422
	1	322	188.20021	10.416	.0001					.657	.3304
			.09560665	12.566	.0001	157.896	.0001	.0448	.114	.8671	.3283
562	0	240	290.0146	14.431	.0001					1.151	.5184
			.12288	16.005	.0001	256.158	.0001	.06669	<.01	.2972	.5163
	1	306	209.0737	10.260	.0001					1.371	.2980
			.09895	11.361	.0001	120.068	.0001	.03797	>.15	.1356	.2957

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	249	295.022	13.285	.0001					3.981	.0001
572			.13904	16.468	.0001	271.183	.0001	.07458	<.01	.0041	
	1	322	208.143	10.072	.0001					1.072	.3596
			.1136	13.405	.0001	179.701	.0001	.044	.131	.3789	.3576
	0	193	358.90210	14.577	.0001					1.078	.4702
582			.12470111	13.020	.0001	169.525	.0001	.0365	>.15	.3771	.4674
	1	209	246.7775	9.882	.0001					.995	.2874
			.0984	9.137	.0001	83.492	.0001	.05668	.098	.4706	.2840
	0	224	409.965	12.205	.0001					.687	.3298
592			.13685	10.453	.0001	109.264	.0001	.09547	<.01	.8364	.3268
	1	255	254.8595	9.482	.0001					1.481	.3246
			.12292	11.026	.0001	121.569	.0001	.0695	<.01	.0849	.3219

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
602	0	210	399.61121	12.141	.0001					2.038	.4423
			.16308	12.843	.0001	164.947	.0001	.0513524	>.15	.0074	.4396
	1	261	220.658	6.636	.0001					.704	.3656
			.1701	12.217	.0001	149.248	.0001	.05779	.033	.8211	.3631
612	0	222	464.59119	16.747	.0001					1.107	.4411
			.13116	13.176	.0001	173.606	.0001	.0630	.031	.3427	.4385
	1	278	264.5606	9.157	.0001					.705	.3370
			.13324	11.844	.0001	140.279	.0001	.048806	.104	.8277	.3346
622	0	182	511.39064	12.571	.0001					1.377	.4124
			.1718	11.239	.0001	126.315	.0001	.053	>.15	.1407	.4091
	1	188	221.69203	5.978	.0001					1.260	.4470
			.1962	12.262	.0001	150.369	.0001	.06395	.06	.2204	.4441

TABLE 6 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
632	0	52	383.30525	4.838	.0001					1.603	.4090
			.18315376	5.882	.0001	34.603	.0001	.129614	.028	.1288	.3972
	1	24	87.64926156	.928	.3635					.697	.5095
			.23765745	4.780	.0001	22.852	.0001	.95898	.451	.6743	.4872
642	0	174	416.868	11.446	.0001					.869	.5012
			.1826	13.145	.0001	172.799	.0001	.0419	>.15	.6223	.4983
	1	177	304.2525	6.672	.0001					1.189	.2597
			.1468	7.835	.0001	61.381	.0001	.0758	.014	.2762	.2554

TABLE 7

Analysis Results for the Proposed Model with the Data Divided by Paygrade

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	69	220.352	4.352	.0001					1.798	.1638
			.099	3.623	.0006	13.129	.0006	.1256	<.01	.0604	.1514
510	2	28	-83.104	-.515	.6111					1.182	.3583
			.239	3.810	.0008	14.516	.0008	.941	.17	.3656	.3336
	3	7	-31.42	-.083	.9373					19.776	.4331
			.183	1.955	.1080	3.821	.1080	.976	.928	.0187	.3198
	1	155	189.75	7.923	.0001					.838	.3468
			.120	9.013	.0001	81.230	.0001	.0677	.082	.6350	.3425
520	2	82	266.96	3.512	.0007					1.068	.0774
			.0767	2.591	.0114	6.711	.0114	.097	.052	.4034	.0659
	3	21	97.57	.366	.7186					4.520	.1209
			.1061	1.061	.1225	2.612	.1225	.948	.366	.0135	.0746

TABLE 7 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	232	227.24	11.020	.0001					2.982	.2244
			.096	8.158	.0001	66.549	.0001	.036	>.15	.0002	.2210
530	2	125	269.32	5.318	.0001					.948	.1575
			.0944	4.796	.0001	23.001	.0001	.0894	.016	.5241	.1507
	3	42	145.39	.790	.4341					1.042	.1845
			.132	3.008	.0045	9.050	.0045	.972	.491	.3994	.1641
	1	276	238.84	7.566	.0001					4.540	.0999
			.099	5.515	.0001	30.414	.0001	.1392	<.01	.0001	.0966
540	2	186	317.55	7.434	.0001					1.537	.1044
			.077	4.631	.0001	21.448	.0001	.0506	>.15	.0828	.0995
	3	54	304.89	2.034	.0471					2.279	.0957
			.08227	2.345	.0229	5.501	.0229	.073	>.15	.0618	.0783

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	259	194.56	10.086	.0001					2.781	.3649
			.132	12.152	.0001	147.669	.0001	.0289	>.15	.0004	.3624
550	2	161	214.619	4.367	.0001					1.689	.2074
			.1213	6.451	.0001	41.614	.0001	.053	>.15	.0478	.2024
	3	51	226.764	1.360	.1800					1.900	.1512
			.1139	2.954	.0048	8.728	.0048	.086	>.15	.1269	.1339
	1	260	212.81	9.428	.0001					3.482	.3092
			.135	10.746	.0001	115.478	.0001	.041	>.15	.0001	.3065
560	2	161	310.811	5.544	.0001					2.153	.1313
			.1056	4.903	.0001	24.042	.0001	.062	.139	.0068	.1259
	3	52	254.71	1.789	.0796					3.696	.1953
			.113	3.484	.0010	12.138	.0010	.052	>.15	.0069	.1792

TABLE 7 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	260	206.63	9.342	.0001					3.716	.3968
			.1624	13.026	.0001	169.689	.0001	.033	>.15	.0001	.3944
570	2	162	414.23	6.918	.0001					2.082	.0720
			.0800	3.523	.0006	12.412	.0006	.0538	>.15	.0110	.0662
	3	59	-95.724	-.572	.5696					9.812	.3566
			.214	5.621	.0001	31.599	.0001	.1007	.14	.0001	.3454
	1	210	271.74	9.202	.0001					3.495	.2496
			.1407	8.317	.0001	69.178	.0001	.0555	.114	.0001	.2460
580	2	98	287.47	3.460	.0008					2.363	.1708
			.1365	4.446	.0001	19.767	.0001	.0632	>.15	.0049	.1621
	3	43	550.498	2.662	.0110					2.989	.0402
			.064	1.310	.1974	1.717	.1974	.981	.754	.0311	.0168

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	223	271.435	7.351	.0001					4.301	.2228
			.1676	8.086	.0001	65.378	.0001	.0851	<.01	.0001	.2194
590	2	135	412.386	4.637	.0001					1.282	.1021
			.1316	3.888	.0002	15.117	.0002	.1052	<.01	.2126	.0953
	3	52	489.326	2.561	.0135					1.613	.0751
			.08981	2.014	.0494	4.058	.0494	.0881	>.15	.1760	.0566
	1	218	269.19	8.548	.0001					3.034	.3491
			.186	10.764	.0001	115.873	.0001	.0374	>.15	.0001	.3461
600	2	136	628.86	6.479	.0001					1.038	.0332
			.0782	2.144	.0338	4.596	.0338	.056	>.15	.4236	.0259
	3	44	593.862	2.427	.0196					1.589	.0787
			.107	1.894	.0651	3.588	.0651	.974	.546	.1971	.0568

TABLE 7 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	194	362.00	9.561	.0001					2.562	.2033
			.144	6.999	.0001	48.980	.0001	.047	>.15	.0014	.1991
610	2	157	443.35	6.423	.0001					1.444	.1355
			.1295	4.928	.0001	24.287	.0001	.048	>.15	.1208	.1299
	3	57	516.27	3.742	.0004					1.945	.2033
			.1107	3.746	.0004	14.035	.0004	.1041	.126	.0921	.1888
	1	172	384.54	8.280	.0001					3.692	.2197
			.1802	6.919	.0001	47.874	.0001	.0566	>.15	.0001	.2151
620	2	102	367.013	2.844	.0054					2.380	.1624
			.217	4.403	.0001	19.390	.0001	.0774	.136	.0056	.1540
	3	45	38.1583	.161	.8728					.073	.3561
			.274	4.877	.0001	23.781	.0001	.9744	.546	.9899	.3411

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	53	309.48	3.134	.0029					1.638	.1696
			.1734	3.227	.0022	10.416	.0022	.1041	>.15	.1173	.1533
630	2	13	754.7007	1.829	.0946					2.474	.0208
			.071	.484	.6381	.234	.6381	.966	.783	.1360	-.0682
	3	7	1523.55	1.666	.1565					1.184	.0253
			-.077	-.360	.7332	.130	.7332	.9279	.5	.3377	-.1696
	1	161	245.972	5.738	.0001					1.248	.4086
			.248	10.481	.0001	109.861	.0001	.0443	>.15	.2394	.4049
640	2	97	488.524	3.559	.0006					3.246	.0753
			.14403	2.782	.0065	7.737	.0065	.0689	>.15	.0002	.0656
	3	43	635.293	2.309	.0260					.747	
			.1056	1.600	.1172	2.561	.1172	.9445	.06	.5665	

TABLE 7 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	71	207.536	3.890	.0002					1.721	.1529
			.10172	3.529	.0007	12.457	.0007	.11523	.02	.0739	.1407
512	2	30	-157.76	-.922	.3644					1.493	.3534
			.2612	3.912	.0005	15.300	.0005	.95548	.335	.2205	.3303
	3	7	-31.419	-.083	.9373					19.776	.4331
			.1827	1.955	.1080	3.821	.1080	.976	.928	.0187	.3198
	1	169	188.34	6.818	.0001					2.005	.2415
			.1119	7.291	.0001	53.157	.0001	.0648	<.082	.0182	.2369
522	2	101	202.56	2.827	.0057					2.258	.0906
			.0889	3.140	.0022	9.861	.0022	.0608	>.15	.0079	.0814
	3	21	99.574	.366	.7186					4.520	.1209
			.106	1.616	.1225	2.612	.1225	.948	.366	.0135	.0746

TABLE 7 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	263	230.055	10.333	.0001					3.935	.1435
			.0832	6.613	.0001	43.728	.0001	.046	>.15	.0001	.1402
532	2	157	206.16	3.901	.0001					2.682	.1377
			.1035	4.975	.0001	24.751	.0001	.053	>.15	.0006	.1321
	3	43	142.80980	.766	.4481					1.105	.1753
			.1309	2.952	.0052	8.713	.0052	.972	.475	.3688	.1552
	1	308	241.34	7.678	.0001					5.537	.0710
			.0854	4.835	.0001	23.380	.0001	.11505	<.01	.0001	.0679
542	2	230	239.409	5.187	.0001					4.984	.0999
			.09098	5.031	.0001	25.316	.0001	.0399	>.15	.0001	.0960
	3	60	297.88	1.903	.0620					3.479	.0722
			.07793	2.125	.0379	4.515	.0379	.0529	>.15	.0135	.0562

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	296	197.586	9.393	.0001					4.171	.2534
			.1175	9.988	.0001	99.760	.0001	.02862	>.15	.0001	.2508
552	2	203	138.252	2.731	.0069					4.105	.1910
			.1358	6.889	.0001	47.459	.0001	.04179	>.15	.0001	.1870
	3	59	26.577	.152	.8796					3.846	.1936
			.1517	3.699	.0005	13.683	.0005	.077	>.15	.0081	.1794
	1	297	215.283	9.168	.0001					4.847	.2299
			.12140	9.385	.0001	88.046	.0001	.04627	.122	.0001	.2273
562	2	192	251.4115	4.212	.0001					4.913	.1111
			.11286	4.874	.0001	23.753	.0001	.03958	>.15	.0001	.1064
	3	57	147.875	1.067	.2907					4.600	.2412
			.13408	4.181	.0001	17.482	.0001	.08338	>.15	.0016	.2274

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	302	219.726	8.956	.0001					5.833	.2558
			.1382	10.156	.0001	103.135	.0001	.0417	>.15	.0001	.2534
572	2	201	304.326	5.037	.0001					4.620	.0942
			.10535	4.549	.0001	20.690	.0001	.0339	>.15	.0001	.0842
	3	68	-173.515	-.973	.3342					8.567	.3073
			.2219	5.412	.0001	29.286	.0001	.06312	>.15	.0071	.2969
	1	235	27.62063	8.490	.0001					5.358	.1710
			.12649	6.932	.0001	48.058	.0001	.05524	.08	.0001	.1674
592	2	120	76.5150	.977	.3304					4.082	.2771
			.20025	6.725	.0001	45.230	.0001	.06966	>.15	.0001	.2710
	3	47	581.758	2.467	.0175					4.645	.0158
			.04728	.851	.3992	.725	.3992	.06055	.738	.0035	-.0060

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	258	272.39	7.226	.0001					6.080	.1697
			.15204	7.234	.0001	52.335	.0001	.07663	<.01	.0001	.1665
592	2	166	319.209	3.596	.0004					3.212	.1013
			.1464	4.300	.0001	18.494	.0001	.0732	.028	.0001	.0959
	3	55	369.564	1.865	.0678					2.139	.1010
			.1135	2.440	.0181	5.953	.0181	.0869	>.15	.0767	.0840
	1	253	269.472	7.886	.0001					3.986	.2526
			.1704	9.210	.0001	84.818	.0001	.03498	>.15	.0001	.2496
602	2	170	416.827	4.483	.0001					2.484	.0800
			.1363	3.821	.0002	14.603	.0002	.04263	>.15	.0016	.0745
	3	48	288.54	1.077	.2872					3.198	.1360
			.16828	2.691	.0099	7.243	.0099	.96731	.366	.0222	.1173

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	233	369.966	9.127	.0001					4.762	.1069
			.11347	5.258	.0001	27.644	.0001	.0358	>.15	.0001	.1030
612	2	202	320.9897	4.325	.0001					4.544	.1218
			.150654	5.267	.0001	27.746	.0001	.0468	>.15	.0001	.1174
	3	65	382.10541	2.495	.0152					3.301	.1936
			.12948	3.890	.0002	15.130	.0002	.1036	.082	.0074	.1808
	1	194	377.09	7.665	.0001					5.668	.1593
			.166	6.032	.0001	36.387	.0001	.0446	>.15	.0001	.1549
622	2	128	213.74	1.725	.0870					5.105	.1757
			.2494	5.183	.0001	26.865	.0001	.067	>.15	.0001	.1692
	3	48	-167.77	-.688	.4946					.543	.3917
			.317	5.442	.0001	29.617	.0001	.972	.468	.7049	.3784

TABLE 7 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	55	292.823	3.011	.0040					1.807	.1771
			.17963099	3.377	.0014	11.404	.0014	.092889	>.15	.0758	.1615
632	2	14	426.88804	.973	.3499					3.498	.0957
			.17715906	1.127	.2819	1.269	.2819	.974048	.806	.0621	.0203
	3	7	1523.5522	1.666	.1565					1.184	.0253
			-.07634	-.360	.7332	.130	.7332	.927927	.5	.3377	-.1696
	1	181	267.04	5.886	.0001					5.437	.3024
			.2182	8.809	.0001	77.606	.0001	.0438	>.15	.0001	.2985
642	2	124	285.77	2.223	.0280					4.638	.1150
			.196	3.982	.0001	15.860	.0001	.0503	>.15	.0001	.1078
	3	46	422.916	1.383	.1737					3.039	.0835
			.14774	2.003	.0514	4.011	.0514	.9398	.035	.0174	.0627

TABLE 8

Analysis Results for the Proposed Model with the Data Divided by Paygrade and Dependency Status

Data Set 510

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	48	220.273	3.810	.0004					.800	.2285
			.115	3.692	.0006	13.628	.0006	.927	<.01	.5918	.2118
	2	15	50.92	.222	.8276					.433	.2960
			.2033	2.338	.0360	5.465	.0360	.95	.481	.7821	.2418
	3	5	541.524	2.930	.0610					1.863	.3968
			.061	1.405	.2547	1.974	.2547	.946	.643	.3055	.1958
1	1	21	215.022	2.616	.0170					2.152	.1019
			.065	1.469	.1583	2.157	.1583	.931	.85	.1163	.0547
	2	13	-119.446	-.533	.6044					1.984	.3845
			.234	2.621	.0238	6.870	.0238	.90	.18	.1950	.3285
	3	2	467.00	14.152	.0449					4.591	.0000
			6	——	——	——	——	——	——	1.000	.0000

TABLE 8 (Continued)

Data Set 512

NBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	48	220.272	3.810	.0004					.800	.2285
			.1152	3.692	.0006	13.628	.006	.926653	<.01	.5918	.2118
	2	15	50.9193	.222	.8276					.433	.2960
			.2032	2.338	.0360	5.465	.0360	.947725	.481	.7821	.2418
	3	5	541.523	2.930	.0610					1.863	.3968
			.06103	1.405	.2547	1.974	.2547	.945602	.643	.3055	.1958
1	1	23	184.07470	2.033	.0549					.825	.0929
			.0718	1.466	.1574	2.150	.1574	.9385	.225	.5679	.0497
	2	15	-200.904	-.859	.4060					2.012	.3618
			.2555	2.715	.0177	7.370	.0177	.9366	.391	.1691	.3127
	3	2	—	Not of full rank	Biased Estimates	—	—	—	—	4.591 1.000	

TABLE 8 (Continued)

Data Set 520

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	87	226.432	7.264	.0001					.618	.3007
			.1032	6.045	.0001	36.544	.0001	.080016	>.15	.7414	.2924
	2	43	209.212	2.141	.0383					1.192	.1777
			.1118	2.976	.0049	8.868	.0049	.9575	.218	.3336	.1576
	3	10	367.75	1.051	.3241					.455	.0884
			.0709	.881	.4042	.775	.4042	.9171	.379	.5217	-.0256
1	1	68	143.705	3.872	.0003					.817	.4070
			.1422	6.730	.0001	45.290	.0001	.1207	.015	.5611	.3980
	2	39	359.6228	3.288	.022					.233	.0091
			.252	.582	.5642	.339	.5642	.941	.063	.9737	-.0177
	3	11	460.15	1.880	.0928					1.592	.0047
			-.0128	-.206	.8417	.042	.8417	.957	.714	.2426	-.1059

TABLE 8 (Continued)

Data Set 522

NSBR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	87	226.43270 .103176	7.264 6.045	.0001 .0001	36.544	.0001	.000016	>.15	.618 .7414	.3007 .2924
	2	43	209.2142 .11177	2.141 2.976	.0383 .0049	8.858	.0049	.9575	.218	1.192 .3336	.1777 .1576
	3	10	367.752 .07087	1.051 .881	.3241 .4042	.775	.4042	.9171	.379	.455 .5217	.0884 -.0256
1	1	82	151.528 .1194	3.292 4.588	.0015 .0001	21.052	.0001	.0855	.143	2.288 .0442	.2083 .1984
	2	58	260.632 .04514	2.971 1.273	.0044 .2084	1.620	.2084	.14074	<.01	.934 .4889	.0281 .0108
	3	11	460.145 -.0127	1.880 -.206	.0928 .8417	.042	.8417	.9577	.714	1.592 .2426	.0047 .1059

TABLE 8 (Continued)

Data Set 530

NSHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	119	290.37	12.316	.0001					.512	.2374
			.0784	6.036	.0001	36.432	.0001	.0822	.047	.8252	.2309
	2	69	307.52	4.380	.0001					.425	.1382
			.088	3.278	.0017	10.746	.0017	.0911	>.15	.9013	.1254
	3	22	322.98	1.241	.2289					.162	.1213
			.10014	1.662	.1122	2.761	.1122	.953	.41	.6914	.0774
1	1	113	180.667	5.710	.0001					1.508	.2145
			.1033	5.506	.0001	30.316	.0001	.055	>.15	.1718	.2075
	2	56	240.79	3.473	.0010					.902	.1812
			.0944	3.457	.0011	11.948	.0011	.1167	.056	.5233	.1660
	3	20	56.76	.218	.8300					.781	.2148
			.1419	2.219	.0396	4.925	.0396	.9802	.915	.3892	.1712

TABLE 8 (Continued)

Data Set 532

NBHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	119	290.37 .0784	12.316 6.036	.0001 .0001	36.432	.0001	.0822	.047	.512 .8252	.2371 .2309
	2	69	307.52 .0885	4.380 3.278	.0001 .0017	10.746	.0017	.0911	>.15	.425 .9013	.1382 .1254
	3	22	322.982 .10014	1.241 1.662	.2289 .1122	2.761	.1122	.953	.41	.162 .6914	.1213 .0774
1	1	144	196.8119 .0773	6.121 4.159	.0001 .0001	17.298	.0001	.0690	.091	.340 .9336	.1086 .1023
	2	88	183.85 .0924	2.807 3.516	.0062 .0007	12.360	.0007	.0999	.029	1.080 .3859	.1257 .1155
	3	21	70.669 .1362	.266 2.095	.7929 .0498	4.390	.0498	.9777	.856	.266 .6123	.1877 .1449

TABLE 8 (Continued)

Data Set 540

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	128	257.153	10.747	.0001					.561	.3473
			.105	8.187	.0001	67.030	.0001	.0515	>.15	.7878	.3421
	2	102	379.365	6.210	.0001					.363	.0751
			.0664	2.850	.0053	8.124	.0053	.0603	>.15	.9372	.0659
	3	26	299.27	1.250	.2235					.340	.1165
			.101	1.779	.0879	3.166	.0879	.960	.441	1.000	.0797
1	1	148	249.41	4.555	.0001					6.386	.0354
			.076	2.314	.0221	5.353	.0221	.209	<.01	.0001	.0288
	2	84	288.0767	5.630	.0001					.072	.1312
			.0713	3.520	.0007	12.388	.0007	.0631	>.15	.9990	.1207
	3	28	226.996	1.363	.1845					.024	.1568
			.1085	2.199	.0370	4.836	.0370	.970	.605	.8776	.1244

TABLE 8 (Continued)

Data Set 542

NGHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	128	257.153	10.747	.0001					.561	.3473
			.10456	8.187	.0001	67.030	.0001	.05153	>.15	.7878	.3421
	2	102	379.365	6.210	.0001					.363	.0751
			.06637	2.850	.0053	8.124	.0053	.0603	>.15	.9372	.0659
	3	26	299.268	1.250	.2235					.328	.1165
			.101297	1.779	.0879	3.166	.0879	.9603	.441	.5724	.0797
1	1	180	265.366	5.251	.0001					5.848	.0151
			.04884	1.653	.1002	2.731	.1002	.179989	<.01	.0001	.0096
	2	128	212.855	3.997	.0001					.466	.0934
			.077	3.602	.0005	12.974	.0005	.062205	>.15	.8779	.0862
	3	34	218.7042	1.241	.2237					.084	.1042
			.0788	1.929	.0627	3.720	.0627	.96897	.499	.9200	.0762

TABLE 8 (Continued)

Data Set 550

NSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	238.48709 .125	9.366 9.075	.0001 .0001	82.364	.0001	.0626	>.15	1.446 .1931	.4050 .4021
	2	86	329.9432 .0925	4.843 3.599	.0001 .0005	12.950	.0005	.0561	>.15	.414 .9093	.1336 .1233
	3	27	201.7031 .1321	.873 2.497	.3910 .0195	6.233	.0195	.925	.057	.464 .5021	.1995 .1676
1	1	136	175.225 .1267	6.484 7.97	.0001 .0001	63.522	.0001	.0441	>.15	1.500 .1722	.3216 .3165
	2	75	137.205 .1337	2.236 5.603	.0284 .0001	31.390	.0001	.0854	>.15	.275 .9721	.3007 .2911
	3	24	321.69 .07719	1.495 1.535	.1492 .1391	2.356	.1391	.967	.596	.317 .5791	.0967 .0557

TABLE 8 (Continued)

Data Set 552

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	238.48	9.366	.0001					1.446	.4050
			.12475	9.075	.0001	82.364	.0001	.0626	>.15	.1931	.4001
	2	86	329.943	4.843	.0001					.414	.1336
			.09253	3.599	.0005	12.950	.0005	.0561	>.15	.9093	.1233
	3	27	201.703	.873	.3910					.464	.1996
			.1322	2.497	.0195	6.233	.0195	.925	.057	.5021	.1676
1	1	173	191.20	6.794	.0001					.424	.1779
			.0983	6.084	.0001	37.016	.0001	.0611	.073	.8868	.1731
	2	117	95.1487	1.652	.1012					.574	.2125
			.1293	5.571	.0001	31.032	.0001	.0677	.15	.7972	.2057
	3	32	51.842	.231	.8186					1.056	.1567
			.1269	2.361	.249	5.576	.0249	.9702	.559	.3126	.1286

TABLE 8 (Continued)

Data Set 560

NSBR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	265.184	9.979	.0001					.575	.4064
			.128	9.102	.0001	82.838	.0001	.085	.025	.7764	.4015
	2	90	404.53	5.000	.0001					.971	.0849
			.0868	2.857	.0053	8.160	.0053	.053	.104	.4645	.0745
	3	27	518.49	2.839	.0089					.712	.1168
			.072	1.818	.0810	3.307	.0810	.989	.99	.5009	.0815
1	1	137	193.325	5.864	.0001					2.435	.2371
			.1[illegible]	6.477	.0001	41.949	.0001	.074	.07	.0224	.2314
	2	71	279.04	4.352	.0001					.593	.1706
			.096	3.767	.0003	14.191	.0003	.0924	.136	.7795	.1586
	3	25	248.72	1.266	.2180					1.815	.1454
			.0937	1.978	.0600	3.914	.0600	.97	.642	.1916	.1083

TABLE 8 (Continued)

Data Set 562

NSHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	123	265.1833	9.979	.0001					.575	.4064
			.1288	9.102	.0001	82.838	.0001	.0856	.025	.7740	.4015
	2	90	404.528	5.000	.0001					.971	.0849
			.0868	2.857	.0053	8.160	.0053	.053	.104	.4645	.0745
	3	27	518.497	2.839	.0089					.712	.1168
			.07209	1.818	.0810	3.307	.0810	.9889	.99	.5009	.0815
1	1	174	204.213	6.431	.0001					1.607	.1567
			.101456	5.654	.0001	31.967	.0001	.0606	.119	.1357	.1518
	2	102	248.4584	3.641	.0004					1.611	.0856
			.08348	3.060	.0028	9.361	.0028	.0489	>.15	.1324	.0765
	3	30	123.36	.6500	.5209					2.480	.1900
			.12005	2.563	.0161	6.567	.0161	.9457	.196	.1270	.1610

TABLE 8 (Continued)

Data Set 570

NSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	127	309.24	11.041	.0001					.613	.3761
			.128	8.680	.0001	75.345	.0001	.092	<.01	.7461	.3711
	2	91	438.99	5.676	.0001					.517	.0921
			.0875	3.004	.0035	9.027	.0035	.0761	>.15	.8402	.0819
	3	31	-200.29	-.785	.4386					17.883	.3980
			.248	4.379	.0001	19.175	.0001	.9093	.016	.0001	.3773
1	1	133	148.38	4.795	.0001					1.628	.3980
			.1736	9.305	.0001	86.592	.0001	.0534	>.15	.1327	.3834
	2	71	405.70	4.940	.0001					1.318	.0520
			.0611	1.946	.0557	3.787	.0557	.137	<.01	.2521	.0383
	3	28	217.154	1.156	.2582					.187	.2460
			.1284	2.912	.0073	8.480	.0073	.96	.417	.6690	.2169

TABLE 8 (Continued)

Data Set 572

NSBR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	127	309.239	11.041	.0001					.613	.3761
			.1288	8.680	.0001	75.345	.0001	.0918	<.01	.7461	.3711
	2	91	438.989	5.676	.0001					.517	.0921
			.08753	3.004	.0035	9.027	.0035	.076	>.15	.8402	.0819
	3	31	-200.292	-.785	.4386					17.883	.3980
			.24789	4.379	.0001	19.175	.0001	.9094	.016	.0001	.3773
1	1	175	191.6869	5.920	.0001					.979	.2021
			.1232	6.619	.0001	43.817	.0001	.0695	.038	.4492	.1975
	2	110	263.645	3.638	.0004					1.787	.0907
			.0925	3.282	.0014	10.771	.0014	.0892	.03	.0884	.0823
	3	37	111.595	.491	.6267					.085	.1532
			.136	2.517	.0166	6.334	.0166	.976	.691	.7723	.1290

TABLE 8 (Continued)

Data Set 500

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	109	384.414	10.971	.0001					1.101	.2315
			.1066	5.678	.0001	32.239	.0001	.0727	>.15	.3683	.2244
	2	61	352.524	3.255	.0019					1.405	.1579
			.1303	3.326	.0015	11.064	.0015	.054	>.15	.2170	.1436
	3	23	500.76	1.963	.0630					.560	.1056
			.093	1.574	.1304	2.478	.1304	.9883	.99	.4630	.0630
1	1	101	215.027	4.845	.0001					.581	.2077
			.141	5.094	.0001	25.948	.0001	.0541	>.15	.7715	.1997
	2	37	324.62	3.280	.0024					1.134	.1412
			.0909	2.398	.0219	5.753	.0219	.973	.582	.3734	.1166
	3	20	813.34	2.896	.0096					.482	.0053
			-.021	-.309	.7608	.096	.7608	.9505	.413	.4967	-.0500

TABLE 8 (Continued)

Data Set 582

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	109	384.414	10.971	.0001					1.101	.2315
			.1066	5.678	.0001	32.24	.0001	.0727	>.15	.3683	.2244
	2	61	352.524	3.255	.0019					1.405	.1579
			.13029	3.326	.0015	11.064	.0015	.05408	>.15	.2170	.1436
	3	23	500.76	1.963	.0630					.560	.1056
			.0930	1.574	.1304	2.478	.1304	.9883	.99	.4630	.0630
1	1	126	253.37	5.552	.0001					.377	.0881
			.096	3.461	.0007	11.978	.0007	.0675	>.15	.9140	.0807
	2	59	86.2809	1.012	.3159					.983	.2753
			.1599	4.653	.0001	21.653	.0001	.0733	>.15	.4606	.2626
	3	24	891.66118	2.808	.0103					.085	.0225
			-.0540836	-.711	.4844	.506	.4844	.9696	.647	.7738	.0220

TABLE 8 (Continued)

Data Set 500

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	120	342.647	6.543	.0001					.176	.2309
			.166	5.953	.0001	35.432	.0001	.1213	<.01	.9885	.2244
	2	77	462.587	3.731	.0004					.558	.0984
			.1333	2.860	.0055	8.181	.0055	.1262	<.01	.8084	.0863
	3	27	455.373	1.578	.1271	2.899	.1011	.942	.196	.016	.0681
			.1135	1.703	.1011	—	—	—	—	.8991	
1	1	110	277.172	6.400	.0001					4.210	.1585
			.117	4.510	.0001	20.338	.0001	.0909	.024	.0004	.1507
	2	58	407.964	3.777	.0004					.326	.1008
			.1047	2.506	.0152	6.278	.0152	.0862	>.15	.9522	.0848
	3	25	555.883	2.367	.0267					.904	.0432
			.0564	1.019	.3190	1.037	.3190	.9611	.466	.4202	.0016

TABLE 8 (Continued)

Data Set 592

NSBR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	120	342.647 .1659	6.543 5.953	.0001 .0001	35.432	.0001	.1213	<.01	.176 .9885	.2309 .2244
	2	77	462.586 .1333	3.731 2.860	.0004 .0055	8.181	.0055	.1262	<.01	.558 .8084	.0984 .0863
	3	27	455.373 .1135	1.578 1.703	.1271 .1011	2.899	.1011	.92122	<.196	.016 .8991	.1039 .0681
1	1	138	292.16 .0896	6.964 3.666	.0001 .0004	13.437	.0004	.1172	<.01	2.582 .0160	.0899 .0832
	2	89	298.736 .117	2.964 2.973	.0039 .0038	8.840	.0038	.08425	.12	.799 .6053	.0922 .0818
	3	28	393.48 .08775	1.585 1.482	.1250 .1504	2.196	.1504	.986	.957	1.075 .3572	.0779 .0424

TABLE 8 (Continued)

Data Set 600

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	110	398.062	10.103	.0001					.761	.3058
			.1432	6.898	.0001	47.581	.0001	.0796	.086	.6230	.2994
	2	77	746.75	6.145	.0001					1.079	.0179
			.0521	1.168	.2463	1.365	.2463	.0649	>.15	.3882	.0048
	3	23	1042.19	2.854	.0095					.000	.0023
			.018	.218	.8298	.047	.8298	.905	.035	.9957	-.0453
1	1	108	173.76	3.968	.0001					.866	.4012
			.212	8.428	.0001	71.029	.0001	.0602	>.15	.5376	.3956
	2	59	581.92	3.865	.0003					.276	.0259
			.072	1.231	.2233	1.516	.2233	.135	<.01	.9709	.0088
	3	21	155.85	.565	.5788					.006	.3227
			.194	3.009	.0072	9.054	.0072	.966	.624	.9375	.2871

TABLE 8 (Continued)

Data Set 602

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	110	398.062	10.103	.0001					.761	.3058
			.1432	6.898	.0001	47.581	.0001	.0796	.086	.6230	.2994
	2	77	746.74803	6.145	.0001					1.079	.0179
			.05209	1.168	.2463	1.365	.2463	.06494	>.15	.3882	.0048
	3	23	1042.199	2.854	.0095					.000	.0023
			.01813	.218	.8298	.047	.8298	.90452	.035	.9957	-.0453
1	1	143	192.00359	4.138	.0001					.543	.2579
			.1798	7.001	.0001	49.012	.0001	.0708	.079	.8020	.2527
	2	93	360.726	2.967	.0038					.435	.0669
			.124	2.554	.0123	6.523	.0123	.112971	<.01	.8970	.0566
	3	25	-241.464	-.747	.4628					.021	.3532
			.2734	3.544	.0017	12.562	.0017	.9816	.908	.8870	.3251

TABLE 8 (Continued)

Data Set 610

NSBR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 / ADJ R^2
0	1	102	515.53109	10.472	.0001					.805	.1121
			.0904	3.553	.0006	12.625	.0006	.093	.027	.5862	.1032
	2	89	575.082	6.821	.0001					.422	.0989
			.0974	3.091	.0027	9.552	.0027	.0608	>.15	.9046	.0886
	3	31	574.26	2.811	.0088					2.149	.1881
			.1110	2.592	.0148	6.721	.0148	.9212	.034	.1361	.1601
1	1	92	240.85	4.682	.0001					.525	.2906
			.1793	6.072	.0001	36.867	.0001	.074	>.15	.8147	.2827
	2	68	356.15117	3.440	.0010					.433	.1531
			.1396	3.454	.0010	11.929	.0010	.1003	.088	.8965	.1402
	3	28	533.66	3.324	.0029					.111	.2163
			.09101	2.574	.0167	6.623	.0167	.959	.425	.8953	.1836

TABLE 8 (Continued)

Data Set 612

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	102	515.531	10.472	.0001					.938	.1121
			.0905	3.553	.0006	12.625	.0006	.093322	.027	.4716	.1032
	2	89	575.0816	6.821	.0001					.439	.0989
			.09735	3.091	.0027	9.552	.0027	.0609	>.15	.8756	.0886
	3	31	574.258	2.811	.0088					4.277	.1881
			.11103	2.592	.0148	6.721	.0148	.921247	.034	.0483	.1601
1	1	131	287.342	5.585	.0001					.303	.1146
			.11463	4.087	.0001	16.704	.0001	.07075	.105	.9343	.1078
	2	113	268.765	2.875	.0048					1.044	.1081
			.1356	3.667	.0004	13.449	.0004	.105	<.01	.4057	.1030
	3	34	370.842	1.837	.0755					.740	.1544
			.10989	2.417	.0215	5.841	.0215	.9698	.524	.3963	.1279

TABLE 8 (Continued)

Data Set 620

NSHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	92	576.16	10.156	.0001					1.316	.1573
			.1192	4.099	.0001	16.8	.0001	.074	>.15	.2523	.1479
	2	63	632.75	3.836	.0003					.741	.0880
			.1488	2.427	.0182	5.889	.0182	.081	>.15	.6554	.0731
	3	27	75.87	.233	.8173					.028	.3317
			.27	3.523	.0017	12.411	.00017	.974	.702	.8684	.3050
1	1	80	333.92	4.215	.0001					.754	.1341
			.154	3.476	.0008	12.082	.0008	.061	>.15	.6288	.1230
	2	39	274.40280	1.799	.0802					.555	.2231
			.1984	3.260	.0024	10.625	.0024	.955	.217	.7621	.2021
	3	18	13.69	.038	.9703					.002	.3811
			.274	3.139	.0063	9.854	.0063	.947	.414	.9688	.3425

TABLE 8 (Continued)

Data Set 622

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	92	576.16	10.156	.0001					1.316	.1573
			.1192	4.099	.0001	16.800	.0001	.074	>.15	.2523	.1479
	2	63	632.75	3.836	.0003					.741	.0880
			.1487	2.427	.0182	5.889	.0182	.0806	>.15	.6554	.0731
	3	27	75.87	.233	.8173					.028	.3317
			.268	3.523	.0017	12.411	.0017	.974	.702	.8684	.3050
1	1	102	382.00126	5.608	.0001					1.001	.0521
			.0981	2.343	.0211	5.492	.0211	.054	>.15	.4361	.0426
	2	65	244.78	1.955	.0551					.631	.1585
			.176	3.445	.0010	11.871	.0010	.086	>.15	.7046	.1452
	3	21	-367.66	-.967	.3455					.207	.4317
			.355	3.799	.0012	14.434	.0012	.957	.466	.6545	.4018

TABLE 8 (Continued)

Data Set 630

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	35	468.89 .118	3.973 1.911	.0004 .0647	3.652	.0647	.951	.219	.996 .4478	.0996 .0723
	2	10	722.945 .0958	1.763 .656	.1159 .5303	.430	.5305	.9401	.524	2.537 .1591	.0510 -.0676
	3	7	1523.55 -.0763	1.666 -.360	.1565 .7332	.130	.7332	.9279	.5	1.184 .3377	.0253 -.1696
1	1	18	152.192 .2008	1.129 2.524	.2754 .0226	6.370	.0226	.9339	.29	.516 .7591	.2848 .2400
	2	3	831.667 0	Biased 8.697	.0130	—	—	.9923	.842	.365 1.000	0 0
	3	—		—	—	—	—	—	—	—	—

TABLE 8 (Continued)

Data Set 632

NBHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 / ADJ R^2
0	1	35	464.89247	3.973	.0004					.996	.0996
			.11813323	1.911	.0647	3.652	.0647	.9515	.219	.4478	.0723
	2	10	722.945	1.763	.1159					2.537	.0510
			.0958	.656	.5303	.430	.5303	.940078	.524	.1591	-.0676
	3	7	1523.5522	1.666	.1565					1.184	.0253
			-.07634	-.360	.7332	.130	.7332	.928	.5	.3377	-.1696
1	1	20	143.5729	1.128	.2743					.529	.2860
			.203839	2.685	.0151	7.210	.0151	.9443	.35	.7510	.2463
	2	4	-1043.952	-1.159	.3662					.365	.6633
			.649002	1.985	.1855	3.941	.1855	.960562	.697	1.000	.4950
	3	—									

TABLE 8 (Continued)

Data Set 640

NSHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	89	275.695	5.037	.0001					.990	.4622
			.24909	8.647	.0001	74.774	.0001	.0588	>.15	.4449	.4560
	2	61	749.789	6.491	.0001					.432	.0517
			.0765	1.793	.0782	3.214	.0782	.0615	>.15	.8964	.0356
	3	24	681.52	2.060	.0514					.202	.0793
			.1078	1.376	.1826	1.894	.1826	.938	.207	.6579	.0374
1	1	72	250.84	3.720	.0004					.811	.3056
			.2202	5.551	.0001	30.809	.0001	.0857	>.15	.5831	.2957
	2	36	288.70	1.045	.3034					2.006	.0667
			.1687	1.559	.1282	2.431	.1282	.979	.763	.0002	.0393
	3	19	698.996	1.495	.1531					.024	.0234
			.0727	.638	.5321	.407	.5321	.9612	.58	.8780	-.0341

TABLE 8 (Continued)

Data Set 642

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
0	1	89	275.695	5.037	.0001						.4622
			.24909	8.647	.0001	74.774	.0001	.05876	>.15	—	.4560
	2	61	749.788	6.491	.0001						.0517
			.076494	1.793	.0782	3.214	.0782	.06152	>.15	—	.0356
	3	24	681.522	2.060	.0514						.0793
			.1078	1.376	.1826	1.894	.1826	.9388	.207	—	.0374
1	1	92	312.4644	4.734	.0001			.08549	.092		.588.1584
			.15406	4.116	.0001	16.945	.0001			.7393	.1591
	2	63	154.626	.870	.3876					2.419	.1082
			.192	2.721	.0085	7.403	.0085	.9863	.13	.0383	.0936
	3	22	324.983	.623	.5401					.100	.0617
			.1473	1.146	.2651	1.314	.2651	.9582	.469	1.000	.0147

TABLE 9

Analysis Results for the Weighted Least Squares Model with all of the Data Used

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
510	51	216.144	4.167	.0001					5.347	.3509
		.1057	5.147	.0001	26.488	.0001	.10409	>.15	.0001	.3376
512	52	180.556	3.687	.0006					4.604	.3567
		.1096	5.265	.0001	27.722	.0001	.0879	>.15	.0009	.3438
520	114	207.383	8.857	.0001					3.736	.4464
		.1018	9.502	.0001	90.295	.0001	.0899	.023	.0001	.4414
522	130	264.317	11.170	.0001					4.082	.2195
		.0613	5.999	.0001	35.989	.0001	.106162	<.01	.0001	.2134
530	181	174.748	11.675	.0001					3.540	.6896
		.12637	19.941	.0001	397.636	.0001	.5085	>.15	.0001	.6878
532	215	165.945	9.672	.0001					4.304	.5060
		.11125	14.771	.0001	218.172	.0001	.0388	>.15	.0001	.5037
540	244	202.005	12.116	.0001					3.816	.4762
		.11074	14.834	.0001	220.034	.0001	.1498	<.01	.0001	.4741
542	288	169.407	9.193	.0001					4.878	.4466
		.1235	15.191	.0001	230.776	.0001	.112865	<.01	.0001	.4446
550	220	188.94083	11.793	.0001					2.818	.5843
		.130419	17.506	.0001	306.470	.0001	.0319	>.15	.0001	.5824

TABLE 9 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
552	267	192.201	10.287	.0001					4.453	.4366
		.12504	14.330	.0001	205.349	.0001	.0508	.091	.0001	.4345
560	221	212.528	12.371	.0001					3.780	.5911
		.1387	17.791	.0001	316.518	.0001	.0514	>.15	.0001	.5892
562	260	176.168	9.505	.0001					5.488	.5299
		.1467	17.053	.0001	290.822	.0001	.04024	>.15	.0001	.5281
570	226	218.71562	11.976	.0001					5.58	.5887
		.14737	17.906	.0001	320.631	.0001	.06334	.025	.0001	.5869
572	272	207.897	10.216	.0001					6.362	.4746
		.14515	15.618	.0001	243.928	.0001	.0382	>.15	.0001	.4727
580	158	173.596	6.900	.0001					4.670	.5639
		.1841	14.203	.0001	201.729	.0001	.0647	.106	.0001	.5611
582	183	251.242	9.124	.0001					6.194	.3650
		.1346	10.200	.0001	104.034	.0001	.05008	>.15	.0001	.3615
590	190	276.086	9.013	.0001					1.956	.4358
		.15775	12.051	.0001	145.217	.0001	.0850	<.01	.002	.4328
592	225	231.25683	7.589	.0001					3.825	.4155
		.16518	12.590	.0001	158.506	.0001	.0595104	.05	.0001	.4129

TABLE 9 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
600	180	298.303	10.760	.0001					5.217	.5897
		.18457	15.994	.0001	255.709	.0001	.04389	>.15	.0001	.5874
602	220	247.0689	8.754	.0001					7.414	.5578
		.18382	16.583	.0001	274.996	.0001	.0667	.017	.0001	.5558
610	186	346.985	12.861	.0001					4.060	.4999
		.1539	13.561	.0001	183.912	.0001	.06119	.088	.0001	.4972
612	237	306.794	11.406	.0001					4.154	.4757
		.1554	14.603	.0001	213.239	.0001	.0462	>.15	.0001	.4735
620	142	349.456	8.996	.0001					3.762	.4499
		.1837	10.701	.0001	114.518	.0001	.0541802	>.15	.0001	.4460
622	165	285.728	8.870	.0001					3.846	.5748
		.2046	14.843	.0001	220.319	.0001	.04914	>.15	.0001	.5722
630	37	558.58646	5.859	.0001					4.448	.1105
		.1096	2.085	.0444	4.349	.0444	.943068	>.085	.0016	.0851
632	38	609.423	5.974	.0001					7.189	.0325
		.0602	1.100	.2787	1.209	.2787	.9678	.417	.0001	.0056
640	135	319.25763	10.217	.0001					1.749	.6418
		.2053	15.439	.0001	238.352	.0001	.0404	>.15	.0154	.6392

TABLE 9 (Continued)

Data Set	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
642	158	263.281	6.440	.0001					3.603	.4736
		.21266	11.847	.0001	140.346	.0001	.0702	.056	.0001	.4702

TABLE 10

Analysis Results for the Weighted Least Squares Model with all of the Data Used

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
510	0	35	206.11	3.385	.0019					8.099	.4057
			.115	4.747	.0001	22.530	.0001	.96	.335	.0001	.3877
	1	16	288.63	4.016	.0013					1.034	.1781
			.047	1.742	.1035	3.033	.1035	.92	.229	.5092	.1194
512	0	32	170.83	4.655	.0001					1.715	.7025
			.1385	8.416	.0001	70.832	.0001	.985	.932	.1504	.6926
	1	20	-104.06	-.729	.4755					1.653	.3712
			.1798	3.260	.0043	10.628	.0043	.9535	.444	.2616	.3363
520	0	55	208.94	8.171	.0001					1.616	.6717
			.1209	10.412	.0001	108.413	.0001	.12381	.035	.1106	.6655
	1	59	240.135	7.754	.0001					.753	.2536
			.0629	4.401	.0001	19.375	.0001	.1311	.013	.7243	.2405

TABLE 10 (Continued)

Data Set	NSBR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
522	0	60	300.05	9.514	.0001					5.273	.2510
			.06	4.409	.0001	19.438	.0001	.1619	<.01	.0001	.2381
	1	70	216.10	6.549	.0001					1.664	.2449
			.0682	4.696	.0001	22.055	.0001	.072	>.15	.1011	.2338
530	0	98	173.28	8.069	.0001					3.533	.7020
			.143	15.037	.0001	226.099	.0001	.076	>.15	.0001	.6988
	1	83	155.29	8.944	.0001					.673	.7799
			.12	16.944	.0001	287.088	.0001	.056	>.15	.8126	.7772
532	0	97	191.178	8.608	.0001					2.719	.6049
			.1313	12.059	.0001	145.415	.0001	.094	.034	.0011	.6007
	1	118	109.76	5.449	.0001					1.014	.6347
			.120	14.197	.0001	201.566	.0001	.0728	.127	.4599	.6316

TABLE 10 (Continued)

Data Set	NSHR	N	Parameter Estimates	t t	Significance Level	F F	Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
540	0	126	188.83	8.931	.0001					2.936	.5933
			.13	13.451	.0001	180.916	.0001	.063	>.15	.0003	.5901
	1	118	191.74	8.679	.0001					1.208	.4537
			.093	9.814	.0001	96.319	.0001	.22	<.01	.2764	.4489
542	0	121	194.313	9.744	.0001					1.777	.6938
			.1418	16.420	.0001	269.61	.0001	.056	>.15	.0360	.6912
	1	167	163.33	7.445	.0001					1.342	.3672
			.097	9.784	.0001	95.733	.0001	.172	<.01	.1794	.3633
550	0	111	215.81	11.297	.0001					.620	.7045
			.14	16.122	.0001	259.93	.0001	.074	.133	.8817	.7018
	1	109	177.21	9.345	.0001					.955	.5662
			.11	11.818	.0001	139.66	.0001	.051	>.15	.5211	.5621

TABLE 10 (Continued)

Data Set	NSBR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	115	218.80	10.702	.0001					.768	.6586
			.14	14.765	.0001	218.015	.0001	.078	.086	.7385	.6556
552											
	1	152	174.73	7.180	.0001					2.567	.3655
			.107	9.296	.0001	86.424	.0001	.05	>.15	.0017	.3613
	0	115	244.96	13.190	.0001					.745	.7337
			.15	17.643	.0001	311.29	.0001	.121	<.01	.7698	.7313
560											
	1	106	190.36	8.638	.0001					1.563	.5415
			.115	11.084	.0001	122.851	.0001	.077	.13	.0955	.5371
	0	114	240.09	12.058	.0001					.692	.7275
			.151	17.290	.0001	298.944	.0001	.0794	.078	.8183	.7250
562											
	1	146	177.13	8.599	.0001					1.839	.4528
			.111	10.915	.0001	119.143	.0001	.062	>.15	.0340	.4490

TABLE 10 (Continued)

Data Set	NSBR	N	Parameter Estimates	t t	Significance Level	F F	Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
570	0	117	277.68	14.533	.0001					2.501	.7265
			.147	17.477	.0001	305.452	.0001	.114	<.01	.0016	.7241
	1	109	171.59	7.379	.0001					1.845	.5967
			.137	12.582	.0001	158.298	.0001	.078	.108	.0345	.5921
572	0	119	281.50	14.836	.0001					.773	.7263
			.148	17.622	.0001	310.538	.0001	.05	>.15	.733	.7240
	1	153	166.124	6.876	.0001					2.382	.4387
			.124	10.864	.0001	118.02	.0001	.055	>.15	.005	.4350
580	0	91	291.47	14.269	.0001					.551	.7402
			.1555	15.923	.0001	253.536	.0001	.0641	>.15	.9214	.7373
	1	67	97.109	2.350	.0218					1.522	.4575
			.1786	7.404	.0001	54.814	.0001	.082	>.15	.1535	.4491

TABLE 10 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
582	0	96	308.87	13.098	.0001					.963	.6500
			.15	13.212	.0001	174.567	.0001	.06	>.15	.5125	.6463
	1	87	203.83	6.102	.0001					.594	.2719
			.094	5.633	.0001	31.734	.0001	.052	>.15	.8765	.2633
590	0	106	323.20	7.915	.0001					.381	.4486
			.1651	9.198	.0001	84.6	.0001	.1199	<.01	.9897	.4433
	1	84	199.73	5.322	.0001					1.528	.5645
			.1605	10.309	.0001	106.283	.0001	.0751	>.15	.1182	.5592
592	0	100	299.298	8.072	.0001					.953	.5595
			.179	11.157	.0001	124.488	.0001	.10916	<.01	.5231	.5550
	1	125	165.14	4.723	.0001					1.481	.4739
			.1574	10.526	.0001	110.788	.0001	.064	>.15	.1243	.4696

TABLE 10 (Continued)

Data Set	NSHR	N	Parameter Estimates	t t	Significance Level	F F	Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	92	432.232	12.724	.0001					6.835	.5470
			.15	10.425	.0001	108.676	.0001	.073	>.15	.0001	.5420
600											
	1	88	139.43	4.0008	.0001					1.284	.6706
			.22	13.232	.0001	175.074	.0001	.057	>.15	.2362	.6686
	0	102	318.68	9.813	.0001					5.805	.6881
			.1787	14.853	.0001	220.602	.0001	.089	.042	.0001	.6850
602											
	1	118	263.15	7.596	.0001					1.390	.3799
			.129	8.430	.0001	71.062	.0001	.099	.01	.1750	.3745
	0	96	387.57	12.551	.0001					1.170	.6174
			.160	12.315	.0001	151.664	.0001	.114	<.01	.3043	.6133
610											
	1	90	276.16	8.314	.0001					.788	.5425
			.142	10.215	.0001	104.346	.0001	.053	>.15	.7053	.5373

TABLE 10 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	Significance Level	F	Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
612	0	114	407.38	16.096	.0001					.932	.6873
			.151	15.688	.0001	246.117	.0001	.082	.056	.5500	.6845
	1	123	233.89	6.397	.0001					1.706	.4006
			.1378	8.993	.0001	80.876	.0001	.054	>.15	.0602	.3957
620	0	87	406.92	9.340	.0001					2.366	.5438
			.189	10.066	.0001	101.32	.0001	.045	>.15	.0066	.5384
	1	55	306.21	6.083	.0001					2.879	.4105
			.143	6.074	.0001	36.90	.0001	.152	<.01	.0075	.3993
622	0	79	389.86	9.432	.0001					2.438	.6280
			.190	11.403	.0001	130.017	.0001	.0633	>.15	.0060	.6232
	1	86	227.73	6.409	.0001					.896	.5820
			.181	10.815	.0001	116.953	.0001	.076	>.15	.5739	.5770

TABLE 10 (Continued)

Data Set	NSBR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	0	30	679.37	7.183	.0001					3.769	.0509
			.062	1.225	.2306	1.502	.2306	.95	.186	.0088	.0170
630											
	1	7	39.67	.131	.9006					.046	.4041
			.36	1.841	.1249	3.391	.1249	.92	.464	.8508	.2849
	0	25	660.15	6.446	.0001					4.792	.0673
			.0704	1.288	.2106	1.659	.2106	.966	.541	.0076	.0267
632											
	1	13	543.08	5.244	.0003					1.381	.0218
			.0278	.495	.6301	.245	.6301	.939	.452	.3809	-.0671
	0	81	361.79	9.858	.0001					.996	.6853
			.19	13.116	.0001	172.041	.0001	.069	>.15	.48	.6813
640											
	1	54	250.64	4.688	.0001					1.641	.5753
			.205	8.4	.0001	70.43	.0001	.116	.071	.1275	.5671

TABLE 10 (Continued)

Data Set	NSHR	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 / ADJ R^2
	0	82	362.48	8.052	.0001					.841	.5865
			.2097	10.652	.0001	113.476	.0001	.111	.014	.6467	.5813
642											
	1	76	146.98	3.111	.0026					.649	.5671
			.2055	9.845	.0001	96.928	.0001	.1005	.057	.8136	.5612

TABLE 11

Analysis Results for the Weighted Least Squares Model with the Data Divided by Paygrade

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	34	248.88	4.942	.0001					1.374	.2616
			.09	3.367	.0020	11.340	.002	.944	.115	.2582	.2386
510	2	13	405.97	1.298	.2210					1.748	.0033
			.022	.190	.8528	.036	.8528	.941	.472	.3065	-.0873
	3	4	-275.37	-.211	.8527					5.203	.2145
			.26	.739	.5368	.546	.5368	.95	.623	1.000	-.1782
	1	35	249.41	4.184	.0002					1.353	.1736
			.09	2.633	.0128	6.931	.0128	.966	.458	.2646	.1485
512	2	15	-115.95	-.513	.6167					.473	.2750
			.1941	2.221	.0448	4.931	.0448	.946	.464	.8218	.2192
	3	2	861.939								
			-.03	—	—	—	—	—	—	—	—

TABLE 11 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	74	116.98	3.634	.0005					1.995	.5190
			.1675	8.814	.0001	77.687	.0001	.0933	.109	.0347	.5123
520	2	30	109.13	1.287	.2085					.893	.3470
			.1294	3.858	.0006	14.881	.0006	.964	.458	.5929	.3237
	3	10	162.38	.309	.7653					2.844	.0873
			.1136	.875	.4072	.765	.4072	.8173	.029	.1497	-.0268
	1	79	187.54	6.502	.0001					1.581	.3876
			.12	6.980	.0001	48.726	.0001	.124221	.01	.1101	.3796
522	2	41	88.79	.990	.3283					5.353	.2477
			.1282	3.584	.0009	12.842	.0009	.921	.011	.0002	.2284
	3	10	-925.38	-2.778	.0240					2.378	.6826
			.359	4.147	.0032	17.201	.0032	.944	.57	.1881	.6429

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	101	160.25	5.68	.0001					1.488	.3790
			.132	7.78	.0001	60.42	.0001	.07	>.15	.1335	.3727
530	2	60	233.31	4.343	.0001					.832	.3087
			.11	5.089	.0001	25.895	.0001	.1052	.096	.6442	.2967
	3	20	401.27	2.196	.0415					1.832	.1638
			.076	1.878	.0767	3.527	.0767	.94	.253	.1876	.1174
	1	115	258.99	8.575	.0001					2.525	.0689
			.0496	2.892	.0046	8.366	.0046	.047	>.15	.0034	.0607
532	2	78	267.608	4.698	.0001					1.832	.1147
			.074	3.138	.0024	9.848	.0024	.075	>.15	.0478	.1031
	3	22	63.36	.380	.7076					.238	.4547
			.1420	4.084	.0006	16.679	.0006	.952	.392	.8687	.4275

TABLE 11 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	122	187.85	6.940	.0001					4.875	.3301
			.124	7.68	.0001	59.123	.0001	.21	<.01	.0001	.3245
540	2	92	129.94	3.453	.0008					1.213	.4729
			.140	8.986	.0001	80.757	.0001	.05	>.15	.2796	.4671
	3	30	70.04	.274	.7860					2.745	.1403
			.136	2.138	.0414	4.571	.0414	.96	.352	.0651	.1096
	1	137	152.36	5.198	.0001					5.609	.3286
			.1432	8.128	.0001	66.067	.0001	.192	<.01	.0001	.3236
542	2	119	73.74	1.314	.1915					4.125	.2723
			.156	6.617	.0001	43.782	.0001	.057	>.15	.0001	.2661
	3	32	525.43	2.109	.0434					4.030	.0127
			.04	.621	.5395	.385	.5395	.966	.46	.0117	-.0202

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	115	139.95 .17	4.941 9.5	.0001 .0001	89.777	.0001	.093	.015	1.49 .1238	.4427 .4378
550	2	78	131.36 .152	2.193 6.56	.0314 .0001	43.041	.0001	.071	>.15	1.944 .0316	.3616 .3532
	3	27	-24.201 .168	-.121 3.815	.9046 .0008	14.553	.0008	.922	.048	.689 .5688	.3679 .3426
	1	132	160.26 .147	5.583 8.509	.0001 .0001	72.405	.0001	.06	>.15	2.467 .0037	.3577 .3528
552	2	104	165.351 .1344	2.384 4.768	.0190 .0001	22.730	.0001	.07	>.15	2.571 .0024	.1822 .1742
	3	31	581.67 .027	3.004 .568	.0055 .5745	.322	.5745	.921	.033	1.947 .1479	.0110 -.0231

TABLE 11 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	115	157.66	5.581	.0001					2.85	.4998
			.178	10.626	.0001	112.9	.0001	.07	>.15	.0010	.4954
560	2	79	116.72	1.726	.0883					.932	.3624
			.172	6.616	.0001	43.765	.0001	.078	>.15	.5392	.3541
	3	27	-106.46	-.662	.5142					3.086	.5409
			.203	5.427	.0001	29.451	.0001	.98	.863	.0394	.5225
	1	133	152.82	5.017	.0001					2.945	.4138
			.1755	9.616	.0001	92.468	.0001	.066	>.15	.0006	.4093
562	2	98	32.145	.678	.4993					4.846	.4934
			.1951	9.670	.0001	93.512	.0001	.061	>.15	.0001	.4882
	3	29	73.824	.400	.6922					5.491	.3440
			.1709	3.763	.0008	14.140	.0008	.97	.572	.0054	.3197

TABLE 11 (Continued)

Data Set	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	115	156.13	5.370	.0001					1.765	.5101
			.189	10.847	.0001	117.66	.0001	.039	>.15	.051	.5058
570	2	79	242.3	3.43	.0010					1.322	.2664
			.14	5.29	.0001	27.965	.0001	.061	>.15	.214	.2569
	3	32	365.95	1.743	.0916					2.957	.1268
			.101	2.087	.046	4.355	.0455	.73	<.01	.04	.0977
	1	135	139.93	4.295	.0001					2.878	.4314
			.191	10.045	.0001	100.904	.0001	.06	>.15	.0007	.4271
572	2	103	148.71	2.00	.0482					2.972	.2503
			.167	5.807	.0001	33.723	.0001	.06	>.15	.0006	.2429
	3	34	107.43	.530	.5995					2.170	.2341
			.156	3.128	.0037	9.781	.0037	.97	.616	.1139	.2102

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	94	77.430	1.576	.1184					1.875	.4037
			.2472	7.892	.0001	62.288	.0001	.0653	>.15	.0424	.3972
580	2	43	232.24	1.905	.0639					2.168	.2642
			.173	3.837	.0004	14.724	.0004	.986	.92	.0450	.2463
	3	21	813.91	2.349	.0298					3.112	.0004
			.0073	.087	.9316	.008	.9316	.961	.519	.0722	-.0522
	1	103	83.36	1.660	.1000					3.369	.3681
			.242	7.670	.0001	58.83	.0001	.085	>.07	.0002	.3618
582	2	57	304.94	2.322	.0240					1.987	.1149
			.13	2.672	.0099	7.142	.0099	.0844	>.15	.0415	.0988
	3	23	1066.85	2.472	.0221					4.320	.0307
			-.082	-.816	.4238	.665	.4238	.966	.585	.0195	-.0154

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	101	248.33	6.758	.0001					1.592	.4416
			.1672	8.848	.0001	78.280	.0001	.0995	.015	.0934	.4359
590	2	63	212.49	1.402	.1659					1.377	.1528
			.1988	3.316	.0015	10.998	.0015	.112	.049	.1974	.1389
	3	26	804.56	3.532	.0017					.849	.0042
			.0175	.317	.7536	.101	.7536	.97	.486	.52	-.0373
	1	114	223.67	5.480	.0001					2.774	.3511
			.1645	7.785	.0001	60.612	.0001	.077	.093	.0014	.3454
592	2	80	253.78	2.160	.0338					2.016	.1387
			.1651	3.544	.0007	12.560	.0007	.092	.092	.0243	.1277
	3	31	819.76	2.555	.0161					2.460	.0028
			.0217	.284	.7786	.080	.7786	.92	.025	.0727	-.0326

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	98	227.49 .199	7.935 16.421	.0001 .0001	269.65	.0001	.051	>.15	1.444 .1475	.7375 .7347
600	2	62	606.15 .084	9.762 3.021	.0001 .0037	9.124	.0007	.056	>.15	1.622 .1015	.1320 .1175
	3	20	1037.82 .018	3.163 .219	.0054 .8293	.048	.8293	.965	.609	.809 .5096	.0027 .0528
	1	112	204.58 .204	7.585 17.666	.0001 .0001	312.079	.0001	.090	.026	2.271 .0088	.7394 .7370
602	2	82	299.56 .1804	2.623 3.993	.0104 .0001	15.948	.0001	.090	.133	1.947 .0298	.1662 .1558
	3	26	-823.80 .422	-2.700 5.5	.0125 .0001	30.200	.0001	.99	.947	1.951 .1539	.5572 .5387

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	88	251.33	5.790	.0001					2.359	.4463
			.207	8.325	.0001	69.306	.0001	.078	>.15	.0084	.4398
610	2	70	601.16	6.457	.0001					.970	.0428
			.061	1.743	.0858	3.038	.0858	.074	>.15	.4989	.0287
	3	28	701.052	4.001	.0005					2.501	.0831
			.065	1.535	.1369	2.356	.1369	.89	<.01	.0648	.0478
	1	102	265.74	5.628	.0001					3.384	.3375
			.1899	7.137	.0001	50.940	.0001	.067	>.15	.0002	.3309
612	2	95	265.24	2.676	.0088					2.332	.1603
			.1633	4.214	.0001	17.757	.0001	.073	>.15	.0066	.1513
	3	40	373.67	2.594	.0134					3.574	.3323
			.1422	4.349	.0001	18.910	.0001	.99	.847	.0111	.3147

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	80	458.68	8.157	.0001					2.045	.1487
			.12	3.691	.0004	13.63	.0004	.082	>.15	.0280	.1378
620	2	41	-20.68	-.105	.9170					2.156	.3319
			.34	4.401	.0001	19.371	.0001	.95	.071	.05	.3147
	3	21	-259.17	-.847	.4073					.552	.5192
			.34	4.530	.0002	20.517	.0002	.97	.643	.6544	.4939
	1	88	326.35	7.922	.0001					2.003	.4535
			.18	8.448	.0001	71.374	.0001	.07	>.15	.0297	.4472
622	2	54	78.038	.597	.5533					4.155	.3832
			.298	5.684	.0001	32.309	.0001	.072	>.15	.0003	.3714
	3	23	-251.72	-.710	.4854					.842	.4011
			.34	3.751	.0012	14.066	.0012	.97	.648	.4897	.3726

TABLE 11 (Continued)

Data Set	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	27	551.79	2.502	.0192					.712	.0291
			.113	.865	.3952	.748	.3952	.96	.421	.6908	-.0098
630	2	5	921.72	7.744	.0045					.470	.1072
			-.024	-.600	.5907	.360	.5907	.89	.394	.6173	-.1904
	3	5	1890.06	2.593	.0809					.105	.2500
			-.172	-1.000	.3910	1.000	.3910	.91	.41	1.000	.0000
	1	29	926.01	5.674	.0001					.566	.0644
			-.1262	-1.363	.1842	1.857	.1842	.9666	.514	.8277	.0297
632	2	5	1563.39	2.510	.0869					2.962	.2600
			-.2018	-1.027	.3802	1.054	.3802	.939	.587	.3351	.0133
	3	4	1758.12	3.287	.0814					.189	.4164
			-.1660	-1.194	.3547	1.427	.3547	.744	.047	1.000	.1245

TABLE 11 (Continued)

Data Set	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	77	262.08	5.557	.0001					.774	.5238
			.24	9.082	.0001	82.49	.0001	.049	>.15	.7007	.5174
640	2	37	535.71	3.542	.0012					3.074	.1317
			.13	2.304	.0273	5.308	.0273	.98	.731	.0110	.1069
	3	21	96.51	.394	.6980					1.570	.4993
			.252	4.35	.0003	18.949	.0003	.925	.121	.2380	.4730
	1	83	200.79	2.69	.0086					1.307	.3047
			.250	5.957	.0001	35.49	.0001	.086	.14	.2237	.2961
642	2	53	342.35	2.340	.0232					2.858	.1627
			.181	3.148	.0027	9.910	.0027	.069	>.15	.0056	.1463
	3	22	662.59	2.310	.0317					1.808	.1402
			.1195	1.806	.0860	3.261	.08160	.971	.049	.1862	.0172

TABLE 12

Analysis Results for the Weighted Least Squares Model with the Data Divided by Paygrade and Dependency Status

Data Set 510

NSBR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 / ADJ R^2
	1	24	234.56	4.049	.0005					—	.3219
			.11	3.232	.0039	10.445	.0039	—	—		.2911
0	2	8	764.64	1.391	.2135						.0435
			-.102	.522	.6202	.273	.6202	—	—	—	-.1159
	3	3	586.05	1.832	.3181						.2704
			.05	.609	.6518	.371	.6518	—	—	—	-.4591
	1	10	296.09	3.841	.0049						.0058
			.008	.216	.8340	.047	.8340	—	—	—	-.1184
1	2	5	-320.34	-.951	.4118						.6150
			.314	2.189	.1164	4.792	.1164	—	—	—	.4867
	3	1	—								

TABLE 12 (Continued)

Data Set 512

NSER	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	24	244.93	3.627	.0015					.425	.2152
			.095	2.456	.0224	6.030	.0224	.971	.669	.8244	.1795
0	2	6	-78.22	-.280	.7933					.066	.4879
			.225	1.952	.1226	3.811	.1226	.923	.483	.9401	.3599
	3	2	861.94							999.99	
			-.03	—	—	—	—	1	1	1.000	—
	1	11	375.061	2.224	.0532					.408	.0368
			-.06	-.586	.5722	.343	.5722	.826	.028	.6821	-.0703
1	2	9	-304.799	-1.234	.2572					.690	.5123
			.2549	2.712	.0301	7.354	.0301	.947	.628	.5530	.4427
	3	—									

TABLE 12 (Continued)

Data Set 520

NEBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	36	131.09	3.543	.0012					1.098	.6481
			.1727	7.913	.0001	62.610	.0001	.9546	.253	.3888	.6377
0	2	13	-139.21	-1.671	.1229					1.307	.8514
			.2399	7.938	.0001	63.017	.0001	.9598	.704	.4513	.8379
	3	6	1174.06	1.955	.1222					.309	.1387
			-.115	-.803	.4672	.644	.4672	.958	.763	1.000	-.0766
	1	38	102.79	2.248	.0308					1.785	.4464
			.1474	5.388	.0001	29.029	.0001	.9548	.23	.1461	.4310
1	2	17	369.613	4.484	.0004					.519	.0059
			.010	.300	.7686	.090	.7686	.8425	<.01	.7799	-.0603
	3	4	167.21	-.220	.8462					54.845	.7718
			.0467	2.601	.1215	6.763	.1215	.9761	.816	1.000	.6576

TABLE 12 (Continued)

Data Set 522

MSBR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 / ADJ R^2
	1	42	236.37	7.191	.0001					1.129	.4020
			.0992	5.185	.0001	26.887	26.887	.957	.217	.3675	.3870
0	2	14	15.319	.096	.9250					7.591	.4297
			.183	3.007	.0109	9.042	.0109	.831	.013	.0142	.3822
	3	4	-1044.99	-1.728	.2262					.302	.7552
			.388	2.484	.1310	6.169	.1310	.999	1	1.000	.6328
	1	37	104.34	2.203	.0343					1.984	.4303
			.1492	5.141	.0001	26.432	.0001	.961	.341	.1109	.4140
1	2	27	206.72	2.387	.0249					1.386	.1344
			.0693	1.970	.0600	3.882	.0600	.8641	.01	.2732	.0998
	3	6	449.215	.801	.4682					1.266	0
			-.0001	-.001	.9995	0	.9995	.924	.487	1.000	-.2500

TABLE 12 (Continued)

Data Set 530

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	54	223.76	6.709	.0001					.640	.3570
			.11	5.373	.0001	28.87	.0001	.077	>.15	.6977	.3446
0	2	33	429.71	5.452	.0001					1.229	.0965
			.053	1.819	.0786	3.309	.0786	.97	.589	.3276	.0673
	3	11	421.19	3.007	.0148					.326	.4717
			.097	2.835	.0196	8.035	.02	.87	.088	1.000	.4130
	1	47	58.272	1.280	.2072					.714	.4756
			.180	6.388	.0001	40.812	.0001	.98	.632	.6169	.4639
1	2	27	207.22	3.863	.0007					.256	.4398
			.11	4.431	.0002	19.631	.0002	.94	.218	.9503	.4174
	3	9	-154.77	-.781	.4603					.410	.7282
			.18	4.330	.0034	18.751	.0034	.94	.598	1.000	.6893

TABLE 12 (Continued)

Data Set 532

NSBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	53	245.143	7.300	.0001					.779	.2820
			.089	4.476	.0001	20.034	.0001	.127	.031	.5905	.2680
0	2	32	334.31	4.94	.0001					.553	.2402
			.09	3.080	.0044	9.485	.0044	.965	.455	.7855	.2149
	3	12	-19.32	-.077	.9403					.242	.5356
			.182	3.396	.0068	11.532	.0068	.894	.173	1.000	.4891
	1	62	231.63	6.056	.0001					.332	.0602
			.04125	1.960	.0546	3.843	.0546	.09	>.15	.9174	.0445
1	2	46	223.03	3.632	.0007					1.414	.1667
			.0751	2.967	.0048	8.805	.0048	.975	.542	.2352	.1498
	3	10	51.192	.297	.7738					.724	.6545
			.139	3.893	.0046	15.155	.0046	.958	.736	1.000	.6113

TABLE 12 (Continued)

Data Set 500

NGHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	55	231.49	8.107	.0001					1.184	.4894
			.12	7.128	.0001	50.81	.0001	.115	.069	.3317	.4798
0	2	57	45.85	1.127	.2645					.616	.6681
			.184	10.523	.0001	110.73	.0001	.092	>.15	.7398	.6621
	3	14	450.79	1.109	.2892					.314	.0425
			.071	.730	.4796	.532	.4796	.95	.552	1.000	-.0373
	1	67	148.80	3.820	.0003					7.008	.2789
			.119	5.014	.0001	25.137	.0001	.26	<.01	.0001	.2678
1	2	35	338.77	5.034	.0001					.824	.0001
			.043	1.695	.0995	2.873	.0995	.98	.86	.5616	.0522
	3	16	132.33	.493	.63					.667	.1374
			.103	1.493	.1575	2.230	.1575	.96	.599	1.000	.0758

TABLE 12 (Continued)

Data Set 542

NSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	55	212.29	7.680	.0001					1.141	.5706
			.1358	8.393	.0001	70.441	.0001	.046	>.15	.3540	.5625
0	2	54	174.93	2.453	.0175					.831	.3229
			.142	4.980	.0001	24.797	.0001	.084	>.15	.5673	.3099
	3	12	197.73	.660	.5241					.943	.2795
			.1493	1.969	.0772	3.879	.0772	.974	.912	1.000	.2074
	1	82	114.33	2.625	.0104					7.478	.2326
			.133	4.924	.0001	24.247	.0001	.235	<.01	.0001	.2230
1	2	65	140.85	2.139	.0363					.917	.1673
			.1022	3.557	.0007	12.654	.0007	.094	>.15	.5014	.1540
	3	20	539.94	2.410	.0269					.024	.0006
			.006	.106	.9168	.011	.9168	.96	.503	.8790	-.0549

TABLE 12 (Continued)

Data Set 5[illegible]

NSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	56	187.20	6.074	.0001					1.374	.5754
			.158	8.554	.0001	73.177	.0001	.137	<.01	.2449	.5675
0	2	40	166.24	2.018	.0507					.395	.4156
			.161	5.198	.0001	27.024	.0001	.984	.869	.8976	.4002
	3	15	-147.38	-.475	.6428					.219	.4343
			.204	3.159	.0075	9.980	.0075	.899	.097	1.000	.3908
	1	59	130.22	3.011	.0039					.732	.3010
			.141	4.954	.0001	24.545	.0001	.11	.074	.6263	.2887
1	2	38	184.93	4.131	.0002					.613	.4833
			.104	5.803	.0001	33.676	.0001	.96	.282	.7401	.4690
	3	12	440.23	1.765	.1080					.371	.0541
			.044	.756	.4670	.572	.4670	.96	.782	1.000	-.0405

TABLE 12 (Continued)

Data Set 552

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	59	197.24	5.956	.0001					1.454	.5194
			.1526	7.849	.0001	61.611	.0001	.084	>.15	.2133	.5110
0	2	45	149.44	2.239	.0304					.508	.4979
			.171	6.530	.0001	42.635	.0001	.967	.375	.8220	.4862
	3	11	625.28	2.038	.0719					.671	.0177
			.0303	.402	.6969	.162	.6969	.853	.055	1.000	-.0915
	1	73	154.93	4.320	.0001					.325	.2811
			.117	5.269	.0001	27.761	.0001	.061	>.15	.9214	.2710
1	2	59	298.94	3.201	.0022					1.172	.0334
			.055	1.403	.1662	1.967	.1662	.127	.018	.3362	.0164
	3	20	539.05	2.371	.0291					.272	.0093
			.0229	.411	.6862	.169	.6862	.093	.266	1.000	-.0458

TABLE 12 (Continued)

Data Set 560

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	55	216.19 .166	7.098 9.425	.0001 .0001	88.833	.0001	.107	.113	.374 .8919	.6263 .6193
0	2	44	197.75 .16	2.132 4.646	.0389 .0001	21.585	.0001	.96	.172	.473 .8474	.3395 .3237
	3	16	227.27 .15	1.101 3.248	.2895 .0058	10.547	.0058	.98	.895	.787 .3924	.4297 .3889
	1	60	116.70 .167	2.859 6.539	.0059 .0001	42.76	.0001	.087	>.15	2.435 .0380	.4244 .4144
1	2	35	199.34 .11	2.905 3.915	.0065 .0004	15.328	.0004	.96	.283	.493 .8073	.3172 .2965
	3	11	163.56 .114	1.117 3.100	.2928 .0127	9.610	.0127	.97	.872	.859 1.000	.5164 .4626

TABLE 12 (Continued)

Data Set 562

NBHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	56	214.30 .1664	6.273 8.357	.0001 .0001	69.836	.0001	.1311	.018	.287 .9403	.5639 .5559
0	2	45	325.37 .120	3.823 3.895	.0004 .0003	15.174	.0003	.845	<.01	.671 .6950	.2608 .2437
	3	13	155.92 .168	.710 3.172	.4928 .0089	10.061	.0089	.98	.909	.702 1.000	.4777 .4302
	1	77	117.58 .1584	2.943 6.367	.0043 .0001	40.542	.0001	.097	.07	1.734 .1264	.3509 .3422
	2	53	203.93 .091	4.926 4.671	.0001 .0001	21.818	.0001	.07	>.15	3.241 .0075	.2996 .2859
	3	16	226.06 .1025	1.279 2.286	.2215 .0384	5.225	.0384	.94	.394	.554 1.000	.2718 .2197

TABLE 12 (Continued)

Data Set 570

NSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	53	226.92	9.141	.0001					1.451	.7551
			.18	12.539	.0001	157.22	.0001	.09	>.15	.2173	.7503
0	2	47	260.08	3.503	.0011					1.012	.4149
			.156	5.649	.0001	31.91	.0001	.99	.862	.4387	.4019
	3	17	189.92	.561	.5834					7.179	.2083
			.152	1.987	.8656	3.946	.0656	.74	<.01	.0189	.1555
	1	62	123.07	2.991	.0040					1.391	.4122
			.17	6.49	.0001	42.08	.0001	.66	>.15	.236	.4024
1	2	32	278.60	3.057	.0047					.901	.2136
			.097	2.854	.0077	8.148	.0077	.96	.308	.5112	.1874
	3	15	661.42	2.9	.013					.488	.0056
			.015	.27	.792	.073	.7919	.98	.93	1.000	-.0709

TABLE 12 (Continued)

Data Set 572

NBBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	57	214.58 .19	8.156 12.872	.0001 .0001	165.69	.0001	.105	.116	.545 .7713	.7508 .7463
0	2	46	272.69 .152	3.530 5.270	.0010 .0001	27.245	.0001	.968	.387	.838 .5636	.3824 .3684
	3	16	408.42 .104	2.204 2.368	.0448 .0328	5.607	.0328	.979	.931	.369 1.000	.2860 .2350
	1	78	135.37 .145	3.203 5.596	.0020 .0001	31.318	.0001	.053	.15	.683 .6638	.2918 .2825
1	2	57	135.77 .137	1.677 4.295	.0993 .0001	18.443	.0001	.1002	>.15	.724 .6322	.2511 .2375
	3	18	127.95 .127	.377 1.477	.7113 .1671	2.095	.1671	.957	.521	.240 1.000	.1158 .0605

TABLE 12 (Continued)

Data Set 580

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	47	249.61	7.800	.0001					1.016	.6575
			.181	9.295	.0001	86.390	.0001	.945	.046	.4297	.6499
0	2	31	513.07	3.794	.0007					1.908	.0876
			.081	1.668	.1060	2.783	.1060	.967	.501	.1246	.0561
	3	13	621.014	1.784	.1021					.297	.0542
			.068	.794	.4439	.631	.4439	.946	.517	1.000	-.0318
	1	47	-59.617	-.720	.4755					.211	.3658
			.287	5.095	.0001	25.954	.0001	.985	.9	.9557	.3517
1	2	12	-282.25	-1.519	.1597					1.403	.6954
			.353	4.778	.0007	22.826	.0007	.913	.299	.3305	.6649
	3	8	169.135	.262	.8024					.384	.0834
			.1094	.739	.4878	.546	.4878	.9071	.377	1.000	-.0694

TABLE 12 (Continued)

Data Set 582

NSBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	50	250.64	6.653	.0001					1.461	.5766
			.182	8.085	.0001	65.366	.0001	.964	.292	.2157	.5678
0	2	33	298.36	2.179	.0370					.859	.2274
			.154	3.020	.0050	9.122	.0050	.95	.183	.5519	.2024
	3	13	722.72	2.394	.0356					.342	.0228
			.04	.506	.6226	.256	.6226	.94	.447	1.000	-.0661
	1	53	58.892	.780	.4393					.759	.2081
			.189	3.661	.0006	13.405	.0006	.084	>.15	.6060	.1926
1	2	24	190.21	.976	.3396					.609	.1358
			.132	1.860	.0764	3.458	.0764	.95	.35	.7201	.0965
	3	10	-120.59	-.195	.8500					.217	.1018
			.129	.952	.3689	.907	.3689	.93	.47	1.000	-.0105

TABLE 12 (Continued)

Data Set 590

NBHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	55	268.00	4.998	.0001					.087	.4470
			.191	6.55	.0001	42.835	.0001	.142	<.01	.9973	.4365
0	2	39	336.97	2.004	.0524					1.156	.1620
			.175	2.675	.0111	7.154	.0111	.91	<.01	.3574	.1394
	3	12	754.16	2.294	.0447					.250	.0316
			.05	.572	.5803	.327	.5803	.96	.704	1.000	-.0652
	1	46	167.89	4.278	.0001					3.371	.6508
			.172	9.055	.0001	81.986	.0001	.93	.014	.0094	.6428
1	2	24	29.65	.093	.9271					1.160	.1381
			.24	1.878	.0738	3.525	.0738	.99	.972	.3773	.0989
	3	14	886.23	2.969	.0117					2.155	.0041
			-.0162	-.223	.8276	.050	.8276	.98	.967	.1728	-.0789

TABLE 12 (Continued)

Data Set 592

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	51	293.01	4.987	.0001					.240	.3827
			.177	5.512	.0001	30.384	.0001	.126	.041	.9607	.3702
0	2	36	419.54	2.916	.0062					.662	.1591
			.143	2.544	.0157	6.470	.0157	.9031	<.01	.7019	.1352
	3	13	917.51	3.144	.0093					.379	.0185
			.032	.456	.6575	.208	.6575	.89	.098	1.000	-.0707
	1	63	122.77	3.023	.0037					2.955	.5575
			.177	8.767	.0001	76.860	.0001	.093	>.15	.0144	.5503
1	2	44	183.53	1.228	.2261					.920	.1446
			.161	2.664	.0109	7.098	.0109	.981	.783	.5035	.1242
	3	18	671.68	1.677	.1130					.312	.0028
			.0203	.212	.8346	.045	.8346	.92	.125	.5853	-.0595

TABLE 12 (Continued)

Data Set 6[illegible]

MBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	52	355.53	11.862	.0001					.592	.7826
			.16	13.416	.0001	179.991	.0001	.12	.084	.7347	.7783
0	2	31	542.11	9.048	.0001					1.133	.4365
			.14	4.740	.0001	22.465	.0001	.97	.581	.3802	.4171
	3	9	1239.16	3.305	.0130					.108	.0014
			-.009	-.098	.9246	.010	.3246	.84	.059	1.000	-.1413
	1	46	118.05	1.763	.0848					.275	.3576
			.22	4.949	.0001	24.494	.0001	.96	.202	.9453	.3430
1	2	31	401.49	3.590	.0012					.557	.2173
			.13	2.837	.0082	8.050	.0082	.97	.61	.7820	.1903
	3	11	398.69	.875	.4041					.258	.1751
			.15	1.382	.2002	1.911	.2002	.93	.452	1.000	.00835

TABLE 12 (Continued)

Data Set 602

NSBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	54	342.50 .1583	12.976 15.535	.0001 .0001	241.331	.0001	.1269	.029	.562 .7583	.8227 .8193
0	2	35	421.49 .1800	2.996 3.337	.0052 .0021	11.134	.0021	.9715	.566	4.379 .0027	.2523 .2296
	3	13	748.96 .107	2.550 1.608	.0270 .1361	2.586	.1361	.818	.012	.112 1.000	.1904 .1168
	1	58	108.36 .2244	1.606 5.030	.1139 .0001	25.303	.0001	.098	.15	1.661 .1507	.3112 .2989
1	2	47	421.14 .092	3.601 1.944	.0008 .0582	3.778	.0582	.753	.01	.518 .8148	.0775 .0570
	3	13	-732.91 .369	-2.350 4.394	.0385 .0011	19.304	.0011	.961	.72	.298 1.000	.6370 .6040

TABLE 12 (Continued)

Data Set 610

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	44	357.83 .17	8.011 7.016	.0001 .0001	49.218	.0001	.81	<.01	1.234 .313	.5396 .5286
0	2	40	520.74 .111	5.118 2.838	.0001 .0072	8.054	.0072	.97	.43	.289 .9532	.1749 .1532
	3	12	664.50 .093	2.420 1.381	.0361 .1975	1.906	.1975	.99	.183	3.968 .0815	.1601 .0761
	1	44	129.81 .24	1.871 5.570	.0683 .0001	31.024	.0001	.99	.86	.875 .5228	.4248 .4111
1	2	30	501.71 .060	3.738 1.254	.0009 .2202	1.572	.2202	.93	.06	.132 .9833	.0532 .0194
	3	16	576.43 .067	4.250 2.11	.0008 .0532	4.458	.0532	.92	.22	.832 .3796	.2415 .1873

TABLE 12 (Continued)

Data Set 612

MSHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	49	360.94 .1827	8.919 8.278	.0001 .0001	68.525	.0001	.849	<.01	1.328 .2673	.5432 .5845
0	2	47	275.87 .199	2.795 5.208	.0076 .0001	27.120	.0001	.948	.059	.773 .6135	.3760 .3632
	3	18	562.28 .1142	2.779 2.592	.0134 .0197	6.716	.0197	.969	.735	.751 .4007	.2957 .2516
	1	53	224.00 .144	3.342 3.605	.0016 .0007	12.997	.0007	.046	7.15	.524 .7868	.2031 .1875
1	2	48	285.88 .115	2.4 2.438	.0209 .0187	5.944	1.187	.964	.303	.693 .6772	.1144 .0952
	3	22	521.86 .0738	3.301 1.879	.0035 .0749	3.530	.0749	.935	.208	2.632 .1221	.1500 .1075

TABLE 12 (Continued)

Data Set 620

NBHR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	46	462.71	6.513	.0001	14.270	.0005	.95	.08	1.498	.25
			.15	3.778	.0005					.2136	.23
0	2	26	287.50	1.158	.2581	7.414	.0119	.95	.302	1.279	.2360
			.25	2.723	.0119					.3180	.2042
	3	15	-151.16	-.362	.7229	10.166	.0071	.97	.797	.155	.4388
			.31	3.188	.0001					1.000	.3957
	1	34	390.82	6.841	.0001	7.224	.0113	.98	.728	.715	.1842
			.083	2.689	.0113					.6412	.1587
1	2	15	248.75	.844	.4141	1.991	.1817	.92	.222	2.858	.1328
			.177	1.411	.1817					.1018	.0661
	3	6	-458.96	-.943	.3996	8.497	.0435	.87	.262	.299	.6799
			.38	2.915	.0435					1.000	.5999

TABLE 12 (Continued)

Data Set 622

NBHR	PG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	41	455.28 .143	10.502 6.894	.0001 .0001	47.526	.0001	.18	.796	.909 .4868	.5493 .5377
0	2	26	453.17 .213	2.504 3.174	.0195 .0041	10.074	.0041	.97	.623	.471 .8204	.2957 .2443
	3	12	367.64 .21	.639 1.443	.5373 .1797	2.081	.1797	.95	.65	.115 1.0000	.1723 .0895
	1	47	263.27 .159	3.50 3.40	.0011 .0014	11.545	.0014	.98	.45	1.275 .2920	.2042 .1865
1	2	28	235.76 .174	2.25 3.90	.0333 .0007	14.762	.0007	.92	.036	1.178 .3491	.3621 .3376
	3	11	-583.72 .41	-1.550 3.95	.1555 .0037	15.60	.0034	.921	.379	.235 1.000	.6337 .5930

TABLE 12 (Continued)

Data Set 630

NBBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	20	873.73	3.734	.0015	.157	.6969	.94	.33	.841	.0086
			-.05	-.396	.6969					.546	-.0464
0	2	5	921.72	7.744	.0045	.360	.5907	.89	.39	.470	.1072
			-.025	-.600	.5907					.6173	-.1904
	3	5	1890.04	2.593	.0809	1.006	.3910	.90	.41	.105	.2500
			-.171	-1.000	.3910					1.000	.000
	1	7	39.67	.131	.9006	3.391	.1249	.92	.46	.071	.4041
			.350	1.841	.1249					.8074	.2849
1	2	-									
	3	-									

TABLE 12 (Continued)

Data Set 632

NSBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	18	1061.81 -.1692	4.744 -1.29	.0002 .2127	1.685	.2127	.9692	.739	.106 .9889	.0953 .0387
0	2	3	1622.92 -.218	1.525 -.655	.3695 .6306	.430	.6306	.941	.832	994.99 1.000	.3005 -.3990
	3	4	1758.12 -.1660	3.287 -1.194	.0814 .3547	1.427	.3547	.744	.047	.189 1.000	.4164 .1245
	1	11	579.09 .0067	5.402 .115	.0004 .9110	.013	.9110	.842	.043	.168 .9138	.0015 -.1045
1	2	2	Biased	—	—	—	—	—	—	—	—
	3	-	—	—	—	—	—	—	—	—	—

TABLE 12 (Continued)

Data Set 640

NSBR	FG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	44	360.20 .197	6.295 6.173	.0001 .0001	38.106	.0001	.98	.379	.657 .6843	.4757 .4632
0	2	25	572.75 .122	3.376 1.946	.0026 .0639	3.788	.0639	.96	.481	.953 .4970	.1414 .1041
	3	12	449.81 .184	1.538 2.776	.1550 .0196	7.705	.0196	.94	.488	.352 1.000	.4352 .3787
	1	33	111.59 .296	1.589 7.600	.1223 .0001	57.760	.0001	.96	.383	.769 .6015	.6507 .6395
1	2	12	243.84 .205	.578 1.296	.5748 .2242	1.679	.2242	.94	.47	4.533 .0643	.1437 .0581
	3	9	40.66 .288	.106 2.265	.9185 .0579	5.130	.0579	.933	.49	.162 1.000	.4229 .3405

TABLE 12 (Continued)

Data Set 642

NBHR	RG	N	Parameter Estimates	t	t Significance Level	F	F Significance Level	Residual Normality Statistic	Residual Normality Significance level	Lack of Fit Statistic Significance level	R^2 ADJ R^2
	1	43	249.51 .2736	3.776 7.3888	.0005 .0001	54.585	.0001	.937	.033	.788 .5859	.5711 .5606
0	2	27	647.72 .102	3.733 1.527	.0010 .1392	2.333	.1392	.952	.322	.310 .9236	.0854 .0488
	3	12	407.30 .1951	.891 1.697	.3940 .1205	2.881	.1205	.905	.245	.184 1.000	.2236 .1460
	1	40	139.11 .215	1.349 3.706	.1855 .0007	13.735	.0007	.949	.1	.367 .8940	.2655 .2462
1	2	26	186.38 .1809	1.389 3.294	.1776 .0031	10.852	.0031	.942	.215	1.452 .2540	.3114 .3827
	3	10	-701.38 .382	-1.060 2.838	.3200 .0219	8.056	.0219	.964	.803	.077 1.000	.5017 .4395

TABLE 13

Comparison of the Sum of Squares of the Residual (SSR) for the Weighted Least Squares Model

Data Set	N1	SSR1	N2	SSR2
510	51	9,897	53	1,034,827
512	52	7,751	56	1,056,933
520	114	17,404	144	2,070,963
522	130	22,754	161	2,666,298
530	181	48,732	218	2,845,033
532	215	81,096	248	4,195,419
540	244	94,332	272	3,993,601
542	280	148,552	310	5,335,179
550	220	83,449	251	3,280,436
552	267	135,099	291	5,645,799
560	221	73,584	252	4,808,349
562	260	110,754	286	6,112,077
570	226	74,157	255	4,066,370
572	272	113,843	299	8,978,859

TABLE 13 (Continued)

Data Set	N1	SSR1	N2	SSR2
580	158	59,282	193	4,685,297
582	183	101,749	219	5,679,094
590	190	88,014	227	7,773,901
592	225	116,967	254	10,649,509
600	180	79,941	218	8,699,271
602	220	107,014	251	9,455,006
610	186	72,844	222	6,945,167
612	237	123,853	263	10,735,081
620	142	53,947	177	8,793,115
622	165	52,229	205	11,883,075
630	37	11,849	36	2,440,355
632	38	15,780	38	3,356,109
640	135	33,880	166	7,693,192
642	158	74,515	193	9,838,503

TABLE 14

Analysis of Covariance Model Results

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HT Same Means	BR Same Means	STD ERR of Estimates	Normality of Residuals
510	1	115	.1139	20.46	.0001	.5724	2&3 1&4 2&4 3&4	1&2 1&3 2&3 1&4 2&4	.01778	.068
	2	145	.0799	8.09	.0001	.2924	1&2 2&3 1&4 2&4 3&4	1&2 1&3 2&3 1&4 2&4 3&4	.0254	<.01
512	1	118	.1126	20.96	.0001	.5716	1&2 2&3 1&4 2&4 3&4	1&2 1&3 1&4 2&4 3&4	.0182	>.15
	2	149	.0864	8.19	.0001	.2089	1&2 2&3 1&4 2&4 3&4	1&2 1&3 1&4 2&3 2&4 3&4	.0254	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HT Same Means	ER Same Means	STD ERR of Estimates	Normality of Residuals
520	1	1086	.0826	75.22	0	.3282	1&2 3&4	All Different	.0065	<.01
	2	1037	.0784	83.18	0	.3613	1&2 3&4	All Different	.0057	<.01
522	1	1154	.0789	89.22	0	.3527	2&3 2&4 3&4	All Different	.0059	<.01
	2	1078	.0802	55.80	.001	.2674	1&2 3&4	2&3	.0068	<.01
530	1	5360	.0931	576.08	0	.4297	All Different	All Different	.0028	<.01
	2	5289	.0980	884.42	0	.5397	All Different	All Different	.0024	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HT Same Means	ER Same Means	STD ERR of Estimates	Normality of Residuals
532	1	5641	.0903	530.27	0	.3972	All Different	All Different	.0029	<.01
	2	5536	.099	742.67	0	.4847	All Different	All Different	.0025	<.01
540	1	12283	.0943	1672	0	.4881	All Different	All Different	.0017	<.01
	2	12056	.0937	1783.59	0	.5089	All Different	All Different	.0016	<.01
542	1	12901	.0907	1376.28	0	.4276	All Different	All Different	.0018	<.01
	2	12649	.0949	1520.99	0	.4572	All Different	All Different	.0017	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HT Same Means	ER Same Means	STD ERR of Estimates	Normality of Residuals
550	1	11438	.0999	1990.74	0	.5494	All Different	All Different	.0017	<.01
	2	11261	.0994	1925.41	0	.5450	All Different	All Different	.0017	<.01
552	1	12000	.0986	55.70	0	.5019	All Different	All Different	.0018	<.01
	2	11775	.1014	167.27	0	.4996	All Different	All Different	.0018	<.01
560	1	7959	.1104	1449	0	.561	1&2	All Different	.00205	<.01
	2	7822	.1126	1413	0	.559	All Different	All Different	.00207	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HF Same Means	HR Same Means	STD ERR of Estimates	Normality of Residuals
562	1	8318	.1136	1267.49	0	.5164	1&2	All Different	.0022	<.01
	2	8223	.1149	1256.83	0	.5171	All Different	All Different	.0022	<.01
570	1	9138	.1208	1127	0	.464	All Different	All Different	.002	<.01
	2	9027	.1184	1170.5	0	.476	All Different	All Different	.0023	<.01
572	1	9715	.1181	1031	0	.4264	All Different	All Different	.0024	<.01
	2	9603	.1229	1021	0	.4269	All Different	All Different	.0024	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HT Same Means	BR Same Means	STD ERR of Estimates	Normality of Residuals
580	1	2894	.1192	390.16	0	.4862	3&4	All Different	.0038	<.01
	2	2822	.1191	285.35	0	.4151	3&4	All Different	.0047	<.01
582	1	3034	.1229	316.01	0	.4223	1&2 3&4	All Different	.0044	<.01
	2	2939	.1207	283.13	0	.4034	3&4	All Different	.0044	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HF Same Means	ER Same Means	STD ERR of Estimates	Normality of Residuals
590	1	5152	.1047	577.38	0	.4397	1&2	All Different	.00406	<.01
	2	5085	.1093	581.53	0	.4450	1&2	All Different	.0040	<.01
592	1	5438	.1042	500.44	0	.3921	1&2	All Different	.0042	<.01
	2	5361	.1133	533.46	0	.4109	1&2	All Different	.0041	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HF Same Means	BR Same Means	STD ERR of Estimates	Normality of Residuals
600	1	3149	.1464	461.31	0	.507	3&4	All Different	.00470	<.01
	2	3066	.159	508.94	0	.538	1&2	All Different	.00473	<.01
602	1	3405	.1579	428.3	0	.4688	3&4	3&4	.0049	<.01
	2	3346	.1541	408.15	0	.4612	1&2 3&4	All Different	.0049	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HT Same Means	BR Same Means	STD ERR of Estimates	Normality of Residuals
	1	3939	.1233	731.44	0	.566	All Different	All Different	.0033	<.01
610										
	2	3854	.1288	782.89	0	.588	All Different	All Different	.0033	<.01
	1	4438	.1308	581.36	0	.4788	2&4 3&4	All Different	.00366	<.01
612										
	2	4325	.1323	606.23	0	.4957	3&4 1&2	All Different	.0037	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	P Significance Level	R^2	HF Same Means	HR Same Means	STD ERR of Estimates	Normality of Residuals
620	1	1358	.1522	210.64	0	.5220	1&2 2&4 3&4	3&4	.0073	<.01
	2	1291	.1501	192.35	0	.5121	1&2 1&4 2&4 3&4	3&4	.0071	<.01
622	1	1469	.1536	162.45	0	.4376	1&2 2&4 3&4	3&4	.0077	<.01
	2	1416	.1517	190.95	0	.4870	1&2 1&4 2&4 3&4	3&4	.0073	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F	Significance Level	R^2	HT Same Means	BR Same Means	STD ERR of Estimates	Normality of Residuals
	1	80	.1715	8.67		.0001	.4162	1&2 1&3 2&3	1&2 1&3 1&4 2&3 2&4 3&4	.0357	.016
630											
	2	91	.1286		18.28	.0001	.6066	1&2 1&3 1&4 2&3 2&4 3&4	1&2 1&3 2&3	.0357	>.15

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HF Same Means	HR Same Means	STD ERR of Estimates	Normality of Residuals
632	1	80	.2138	12.40	.0001	.5047	1&2 1&3 2&3	1&2 1&3 2&3 1&4 2&4 3&4	.0382	.061
	2	94	.1472	14.22	.0001	.5365	1&2 1&3 2&3 2&4 3&4	1&2 1&3 2&3 1&4 2&4 3&4	.0333	.056
640	1	1120	.15405	224.94	0	.5861	1&2	All Different	.0069	<.01
	2	1061	.1674	213.78	0	.5869	1&2 3&4	3&4	.0066	<.01

TABLE 14 (Continued)

Data Set	Group	N	Slope Estimates	F	F Significance Level	R^2	HF Same Means	HR Same Means	STD ERR of Estimates	Normality of Residuals
	1	1248	.1524	165.15	0	.4825	1&2 3&4	All Different	.0075	<.01
642										
	2	1183	.1673	183.17	0	.5218	1&2 1&4 3&4	1&2	.0074	<.01

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